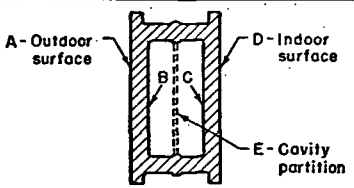
TABLE 18. DESCRIPTION OF GLASS BLOCK PATTERNS



HOLLOW GLASS BLOCK USED FOR VERTICAL WALLS

Type I —Smooth Face
- A, D: Smooth
- B: Wide vertical ribs or flutes
- C: Wide horizontal ribs or flutes
- E: None

Type II —Semi-Light Diffusing
- A, D: Narrow vertical ribs or flutes
- B, C: Etched or stippled
- E: None

Type III—Light Diffusing
- A, D: Narrow vertical ribs or flutes
- B, C: Etched or stippled
- E: Glass fiber screen

Type IV—Light Diffusing
- A, D: Close pitch deep horizontal corrugations
- B, C: Vertical light diffusing prisms
- E: None

Type IVA—Light Diffusing
Same as IV except corrugations vertical

Type V —Light Directing
- A, D: Close pitch deep vertical corrugations
- B, C: Horizontal light directing prisms
- E: None

HOLLOW GLASS BLOCK USED FOR HORIZONTAL SKYLIGHTS

Type VI—Light Directing (skylight)
- A: Smooth surface
- B: Light-directing prisms
- C, D: Light-diffusing surface
- E: Clear glass fiber screen

Type VII—Light diffusing (skylight)
- A: Smooth surface
- B, C: Stippled surface
- D: Narrow-ribbed surface
- E: Green-tinted glass fiber screen

same that a single table suffices. Note, however, that corrections must be made for certain hours for east and west facing walls of some patterns.

Tables 22 and 23 give instantaneous heat gain values for two types of glass block designed for use in skylights. The Type VI block is 10⅝ x 10⅝ in. and the Type VII block 12 x 12 in.

It should be noted that the data for Type VI glass block in Tables 22 and 23 are for panels as assembled. Since the manner of mounting this type of block is standard the ratio of glass area to *opaque* area is virtually constant from one skylight to another. The Type VII glass block may be mounted on a wide range of center-to-center distances. The *opaque* portion of the assembly should be considered independent of the glass block. See Reference 24 for more complete information.

These tables are based upon the solar intensity values for a clear atmosphere as given in Table 4. For solar energy transmittance data refer to References 21 and 24.

The values of convection and radiation gain are based on values of 80 F for indoor air temperature, a maximum outdoor air temperature of 95 F and upon experimentally determined values of solar energy and temperature difference between the two faces. Indoor and outdoor convection and radiation heat transfer values are the same as those used for common window glass. Table 24 gives corrections to be applied for other design temperatures.

TABLE 19. INSTANTANEOUS RATE OF HEAT GAIN DUE TO TRANSMITTED DIRECT AND DIFFUSE SOLAR RADIATION BY UNSHADED WALLS OF 8-IN. HOLLOW GLASS BLOCK OF TYPE I PATTERN

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

Note: For total instantaneous heat gain add these values to Table 21 values

Latitude	Sun Time		Instantaneous Heat Gain in Btu per (hr) (sq ft)							
	AM→ ↓		N	NE	E	SE	S	SW	W	NW
30 Deg North	6 a.m.	6 p.m.	4	45	55	12	2	2	2	2
	7	5	5	59	94	29	4	3	3	3
	8	4	5	42	94	38	5	4	4	4
	9	3	5	25	59	34	6	5	5	5
	10	2	6	12	27	24	9	6	6	6
	11	1	6	8	12	13	10	7	6	6
	12		6	6	7	8	9	8	7	6
40 Deg North	5 a.m.	7 p.m.	1	3	3	0	0	0	0	0
	6	6	5	50	67	17	2	2	2	2
	7	5	4	54	98	36	4	4	4	4
	8	4	5	34	90	47	5	4	4	4
	9	3	5	18	59	47	10	5	5	5
	10	2	6	8	29	35	15	5	6	6
	11	1	6	6	13	22	18	7	6	6
	12		6	6	6	13	17	13	6	6
50 Deg North	5 a.m.	7 p.m.	4	28	27	4	1	1	1	1
	6	6	5	53	77	22	3	2	2	2
	7	5	4	44	101	44	4	4	4	4
	8	4	4	26	86	57	7	4	4	4
	9	3	5	12	57	60	16	5	5	5
	10	2	5	6	29	54	25	6	5	5
	11	1	6	6	14	34	32	10	6	6
	12		6	6	6	20	34	20	6	6
		↑ PM→	N	NW	W	SW	S	SE	E	NE

Example 9: Find the total instantaneous heat gain through an east wall of 8-in. hollow glass block of Type V pattern at 8 a.m. and 50 deg north latitude. The design temperatures are 80 F indoors and 95 F maximum outdoor dry-bulb, clear atmosphere.

Solution: The gain due to transmitted solar radiation is found from Table 19 for Type I pattern. The factor for Type V is found from Table 20. The convection and radiation gain is found from Table 21 (note the footnote).

The total instantaneous heat gain is, from Equation 2a,

$$q = 86 \times 0.65 + 26 \times 1.4 = 92.3 \text{ Btu per (hr)(sq ft)}.$$

Effect of Deviations from Design Conditions

If the indoor temperature differs from 80 F, or the design outdoor dry-bulb temperature differs from 95 F, corrections can be made to the convection and radiation gain values for flat glass, rolled figured glass, and glass block according to the schedule in Table 24.

The effect of the humid industrial type atmosphere is to cause a considerable reduction in heat gain, if all factors except solar intensity remain the same. Reference 22 gives heat gain values for four orientations at 40 deg north latitude on August 1 for several types of flat glass and glass block, and solar intensities typical of humid industrial atmospheres. These data show that the following approximate reductions, based on total gain for the day, can be expected: 20 percent for all types of glass and glass