TABLE 13. COEFFICIENTS OF TRANSMISSION (U) OF CONCRETE CONSTRUCTION FLOORS AND CEILINGS

Coefficients are expressed in Btu per (hour) (square foot) (Fahrenheit degree difference in temperature between the air on the two sides), and are based on still air (no wind) conditions on both sides.

TYPE OF CEILING	THICKNESS OF CONCRETE (INCHES)	TYPE OF FLOORING					NUMBER
		No Flooring (Concrete Bare)	Tile[a] or Terrazzo Flooring on Concrete	⅛ In. Asphalt Tile[b] Directly on Concrete	Parquett[c] Flooring in Mastic on Concrete	Double Wood Floor on Sleepers[d]	
		A	B	C	D	E	
No Ceiling	3	0.68	0.65	0.66	0.45	0.25	1
	6	0.59	0.56	0.58	0.41	0.23	2
	10	0.50	0.48	0.49	0.36	0.22	3
½ in. Plaster Applied to Underside of Concrete	3	0.62	0.59	0.60	0.43	0.24	4
	6	0.54	0.52	0.53	0.39	0.22	5
	10	0.46	0.44	0.45	0.34	0.21	6
Metal Lath and Plaster[e]—Suspended or Furred	3	0.38	0.37	0.37	0.30	0.19	7
	6	0.35	0.34	0.35	0.28	0.18	8
	10	0.32	0.31	0.32	0.26	0.17	9
Gypsum Board (⅜ in.) and Plaster[f]—Suspended or Furred	3	0.36	0.35	0.35	0.28	0.19	10
	6	0.33	0.32	0.33	0.27	0.18	11
	10	0.30	0.29	0.30	0.24	0.17	12
Insulating Board Lath (½ in.) and Plaster[f]—Suspended or Furred	3	0.25	0.24	0.25	0.21	0.15	13
	6	0.23	0.23	0.23	0.20	0.15	14
	10	0.22	0.21	0.22	0.19	0.14	15

[a] Thickness of tile assumed to be 1 in.

[b] Conductivity of asphalt tile assumed to be 3.1.

[c] Thickness of wood assumed to be ¹³⁄₁₆ in.; thickness of mastic, ⅛ in. (k = 4.5). Col. D may also be used for concrete covered with carpet.

[d] Based on ¹³⁄₁₆ in. yellow pine or fir sub-flooring and ⅜ in. hardwood finish flooring with an air space between sub-floor and concrete.

[e] Thickness of plaster assumed to be ¾ in.

[f] Thickness of plaster assumed to be ½ in.

[g] For other thickness of concrete, interpolate.

TABLE 14. COEFFICIENTS OF TRANSMISSION (U) OF CONCRETE BASEMENT FLOORS ON GROUND WITH VARIOUS TYPES OF FINISH FLOORING

U = 0.10[a] Btu per (hr) (sq ft) (Fahrenheit degree temperature difference between the ground and the air over the floor).

[a] Since authentic data are not available, this coefficient is sometimes used for concrete floors on ground. For more recent procedures[13] refer to *National Bureau of Standards Report* BMS-103.

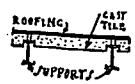
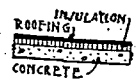
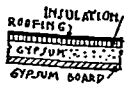
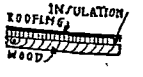
is also assumed that the glass loses heat by radiation to the ground and to the clear sky, which together have an effective radiating temperature *below* the air temperature. It is therefore necessary to determine, by trial and error, the temperature of the outdoor glass surface such that the sum of the radiation and convection losses equals the heat conducted through the glass section, and equals the heat delivered to the glass from the heated space. This heat flow, divided by the air-to-air temperature difference, results in a U value which is used in the usual manner. The equivalent surface conductance for radiation and convection combined, based on *air-to-surface* temperature difference, therefore varies from about 5.5 for single glass to about 6.6 for double glass for exactly the same environmental design conditions.

It is assumed that the room air temperature equals the average temperature of the room surfaces *seen* by the glass. Special consideration should be given to those cases where the glass *sees* interior surfaces at

TABLE 15. COEFFICIENTS OF TRANSMISSION (U) OF FLAT ROOFS COVERED WITH BUILT-UP ROOFING. NO CEILING—UNDER SIDE OF ROOF EXPOSED

(See Table 16 for Flat Roofs with Ceilings)

These coefficients are expressed in Btu per (hour) (square foot) (Fahrenheit degree difference in temperature between the air on the two sides), and are based on an outside wind velocity of 15 mph.

TYPE OF ROOF DECK	THICKNESS OF ROOF DECK (INCHES)	No Insulation	Insulation on Top of Deck (Covered with Built-Up Roofing)							NUMBER
			Insulating Board (Thickness Below)				Corkboard (Thickness Below)			
			½ In.	1 In.	1½ In.	2 In.	1 In.	1½ In.	2 In.	
		A	B	C	D	E	F	G	H	
Flat Metal Roof Deck[a] 		0.94	0.39	0.24	0.18	0.14	0.23	0.17	0.13	
Precast Cement Tile 	1½ in.	0.84	0.3	0.24	0.17	0.14	0.22	0.16	0.13	2
Concrete 	2 in.	0.82	0.36	0.24	0.17	0.14	0.22	0.16	0.13	3
	4 in.	0.72	0.34	0.23	0.17	0.13	0.21	0.16	0.12	4
	6 in.	0.65	0.33	0.22	0.16	0.13	0.21	0.15	0.12	5
Gypsum Fiber Concrete[b] on ½ in. Gypsum Board 	2½ in.	0.38	0.24	0.18	0.14	0.12	0.17	0.13	0.11	6
	3½ in.	0.31	0.21	0.16	0.13	0.11	0.15	0.12	0.10	7
Wood[c] 	1 in.	0.49	0.28	0.20	0.15	0.12	0.19	0.14	0.12	8
	1¼ in.	0.37	0.24	0.17	0.14	0.11	0.17	0.13	0.11	9
	2 in.	0.32	0.22	0.16	0.13	0.11	0.16	0.12	0.10	10
	3 in.	0.23	0.17	0.14	0.11	0.096	0.13	0.11	0.091	11

[a] Coefficient of transmission of bare corrugated iron (no roofing) is 1.50 Btu per (hr) (sq ft of projected area) (F deg difference in temperature) based on an outside wind velocity of 15 mph.

[b] 87½ percent gypsum, 12½ percent wood fiber. Thickness indicated includes ½ in. gypsum board.

[c] Nominal thicknesses specified—actual thicknesses used in calculations.