TABLE 11. COEFFICIENTS OF TRANSMISSION (U) OF CONCRETE CONSTRUCTION FLOORS AND CEILINGS

Coefficients are expressed in Btu per hour per square foot per degree Fahrenheit 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[a] (INCHES)	TYPE OF FLOORING					NUMBER
		No Flooring (Concrete Bare)	Tile[a] or Terrazzo Flooring on Concrete	¼ In. Battleship[b] Linoleum Directly on Concrete	Parquet[c] Flooring In Mastic on Concrete	Double Wood Floor on Sleepers[d]	
		A	B	C	D	E	
No Ceiling	3	0.69	0.65	0.45	0.45	0.25	1
	6	0.59	0.56	0.41	0.41	0.23	2
	10	0.50	0.48	0.36	0.36	0.22	3
½ in. Plaster Applied to Underside of Concrete	3	0.62	0.59	0.43	0.43	0.24	4
	6	0.54	0.52	0.39	0.39	0.22	5
	10	0.46	0.44	0.34	0.34	0.21	6
Metal Lath and Plaster[e]—Suspended or Furred	3	0.38	0.37	0.30	0.30	0.19	7
	6	0.35	0.34	0.28	0.28	0.18	8
	10	0.32	0.31	0.26	0.26	0.17	9
Gypsum Board (⅜ in.) and Plaster[f]—Suspended or Furred	3	0.36	0.35	0.28	0.28	0.19	10
	6	0.33	0.32	0.27	0.27	0.18	11
	10	0.30	0.29	0.24	0.24	0.17	12
Insulating Board Lath (½ in.) and Plaster[f] Suspended or Furred	3	0.25	0.24	0.21	0.21	0.15	13
	6	0.23	0.23	0.20	0.20	0.15	14
	10	0.22	0.21	0.19	0.19	0.14	15

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

[b]The figures in Column C may be used with sufficient accuracy for concrete floors covered with carpet.

[c]Thickness of wood assumed to be 13/16 in.; thickness of mastic, ⅛ in. (k = 4.5).

[d]Based on 25/32 in. yellow pine or fir sub-flooring and 13/16 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 thicknesses of concrete, interpolate.

TABLE 12. COEFFICIENTS OF TRANSMISSION (U) OF CONCRETE FLOORS ON GROUND WITH VARIOUS TYPES OF FINISH FLOORING

U = 0.10[a] Btu per hour per square foot per degree Fahrenheit temperature difference between the ground and the air over the floor.

[a]Until more complete data are available, based on tests now in progress, it is recommended that a coefficient of 0.10 be used for all types of concrete floors on the ground, with or without insulation. For basement wall below grade, use the same average coefficient (0.10). A lower ground temperature should, however, be used for walls than floors as explained in Chapter 6. For further data see A.S.H.V.E. RESEARCH REPORT No. 1213—Heat Loss Through Basement Walls and Floors, by F. C. Houghten, S. I. Taimuty, Carl Gutberlet and C. J. Brown (A.S.H.V.E. TRANSACTIONS, Vol. 48, 1942, p. 369).

vapor will also condense whenever it comes in contact with surfaces or objects at or below the dew-point temperature. Thus two types of condensation problems are encountered in building practice, namely (1) *Surface condensation* or condensation on the interior building surfaces including the walls, ceiling (or roof) and glass, and (2) *Interstitial condensation* or the transmittance of the vapor through the building materials and condensation of the moisture on surfaces or voids within the materials of construction.

Condensation within the construction as well as condensation on the interior surfaces does not necessarily occur in all buildings but only in

TABLE 13. COEFFICIENTS OF TRANSMISSION (U) OF FLAT ROOFS COVERED WITH BUILT-UP ROOFING. NO CEILING—UNDER SIDE OF ROOF EXPOSED

(See Table 14 for Flat Roofs with Ceilings)

These coefficients are expressed in Btu per hour per square foot per degree Fahrenheit 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	1
Precast Cement Tile	1⅝ in.	0.84	0.37	0.24	0.18	0.14	0.22	0.16	0.13	2
Concrete	2 in.	0.82	0.37	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 and Wood Fiber[b] on ⅜ in. Gypsum Board	2⅜ in.	0.40	0.25	0.18	0.14	0.12	0.17	0.13	0.11	6
	3⅜ in.	0.32	0.22	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
	1½ in.	0.37	0.24	0.18	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 hour per square foot of projected area per degree Fahrenheit difference in temperature, based on an outside wind velocity of 15 mph.

[b]87½ per cent gypsum, 12½ per cent wood fiber. Thickness indicated includes ⅜ in. gypsum board.

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