TABLE 28. COEFFICIENTS OF TRANSMISSION (*U*) OF CONCRETE CONSTRUCTION FLOORS ON GROUND[a]

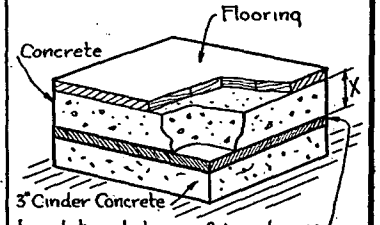
Note.—THESE COEFFICIENTS ARE EXPRESSED IN BTU PER HOUR PER SQUARE FOOT PER 1 DEG FAHR DIFFERENCE IN TEMPERATURE BETWEEN THE GROUND AND THE AIR OVER THE FLOOR AND ARE BASED ON STILL-AIR (NO WIND) CONDITIONS.

The values of U in this Table are based on the following Internal Conductivities or Conductances which are expressed in B.t.u. per Hr. per Sq.Ft. per 1°F

Tile or Terrazzo	10.00 per 1"
Concrete (Stone 1:2:4 mix)	8.30 per 1"
Cinder Concrete	5.20 per 1"
Wood (Yellow Pine)	1.00 per 1"
Wood (Maple)	1.20 per 1"
Rigid Insulation (Board form)	0.33 per 1"
Cork board	0.30 per 1"

Y = Thickness of Insulation in Inches where specified

Typical Construction



Number	Type of Insulation (Between Cinder & Stone Concrete)	Thickness Y	Thickness X	Type of Flooring: No Flooring (Concrete bare) A	1" Yellow Pine Flooring on Wood Sleepers embedded in Concrete [c] B	13/16" Maple or Oak Flooring on 1" Yellow Pine Sub-Flooring on Wood Sleepers embedded in Concrete C	1" Terrazzo or Tile Flooring on Concrete D
1	No Insulation	0"	4"	0.556	0.388	0.308	0.526
2		0"	5"	0.521	0.370	0.297	0.495
3		0"	6"	0.490	0.355	0.286	0.467
4		0"	8"	0.439	0.327	0.268	0.420
5	Rigid Insulation (Board form)	1"	4"	0.207	0.178	0.159	0.203
6		1"	5"	0.202	0.174	0.156	0.198
7		1"	6"	0.197	0.171	0.153	0.193
8		1"	8"	0.188	0.164	0.148	0.185
9	Cork board	2"	4"	0.118	0.108	0.101	0.117
10		2"	5"	0.116	0.107	0.100	0.115
11		2"	6"	0.115	0.105	0.098	0.113
12		2"	8"	0.112	0.103	0.096	0.110

[a] Assume ground temperature to be 50 deg. fahr.

[b] Membrane waterproofing neglected in calculations.

[c] The figures in column "B" may be used with sufficient accuracy for maple or oak flooring on wood sleepers embedded in concrete.

TABLE 29. COEFFICIENTS OF TRANSMISSION (*U*) OF VARIOUS TYPES OF FLAT ROOFS COVERED WITH BUILT-UP ROOFING WITHOUT CEILINGS. (UNDERSIDE OF ROOF EXPOSED)

Note.—THESE COEFFICIENTS ARE EXPRESSED IN BTU PER HOUR PER SQUARE FOOT PER 1 DEG FAHR DIFFERENCE IN TEMPERATURE BETWEEN THE AIR ON THE TWO SIDES AND ARE BASED ON AN OUTSIDE WIND EXPOSURE OF 15 MILES PER HOUR.

The values of U in this Table are based on the following Internal Conductivities or Conductances which are expressed in B.t.u. per Hr. per Sq.Ft. per 1°F

Roofing	1.325 per 1"
Concrete	8.30 per 1"
Gypsum (Fiber Concrete)	1.66 per 1"
Wood (Yellow Pine or Fir)	1.00 per 1"
Rigid Insulation (Board form)	0.33 per 1"
Flexible Insulation	0.27 per 1"
Cork board	0.30 per 1"
Plaster board	3.13 per 1"
Cellular Gypsum (24#)	0.77 per 1"
Lt. Wt. Heat treated Clay Aggregate Cement	1.62 per 1"

Line No.	Thickness of Insulation	Kind of Insulation	Concrete Roofs: 1 5/8" C	2"	3"	4"	5"	6"	Wood Roofs: 1"	1½"	2"	3"	4"	Gypsum Fiber Concrete (87½% Gypsum–12½% Wood Fiber): 2½"	3½"	Flat Metal Roofs	Corrugated Iron Roofs
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	0"	No Insulation	0.690	0.658	0.610	0.568	0.532	0.500	0.485	0.386	0.345	0.256	0.204	0.354	0.292	0.781	1.50[c]
2	½"	Rigid Insulation (Board form)	0.334	0.330	0.317	0.306	0.295	0.285	0.280	0.243	0.226	0.184	0.156	0.230	0.202	0.358	
3	1"		0.222	0.220	0.214	0.209	0.203	0.199	0.196	0.178	0.168	0.144	0.126	0.171	0.155	0.232	
4	1½"		0.166	0.165	0.162	0.159	0.156	0.153	0.151	0.140	0.134	0.118	0.106	0.136	0.126	0.172	
5	2"		0.133	0.132	0.130	0.128	0.126	0.124	0.123	0.116	0.112	0.100	0.091	0.112	0.106	0.136	
6	1"	Cork board	0.208	0.206	0.201	0.196	0.192	0.188	0.185	0.169	0.160	0.138	0.121	0.163	0.148	0.217	
7	1½"		0.154	0.153	0.151	0.148	0.145	0.143	0.142	0.132	0.126	0.124	0.101	0.128	0.119	0.160	
8	2"		0.123	0.122	0.120	0.119	0.117	0.115	0.114	0.108	0.104	0.095	0.086	0.106	0.099	0.126	
9	½"	Flexible Insulation (Not compressed)	0.301	0.297	0.286	0.277	0.268	0.260	0.256	0.225	0.210	0.174	0.148	0.214	0.190	0.319	
10	1"		0.193	0.191	0.187	0.183	0.179	0.175	0.174	0.159	0.151	0.131	0.116	0.153	0.140	0.201	
11	2"	Cellular Gypsum	0.246	0.243	0.236	0.229	0.223	0.217	0.214	0.195	0.182	0.154	0.133				

[a] Pre-cast cement tile. For heat-treated clay aggregate cement tile covered with roofing, $U = 0.55$ (1½ in. slab) and $U = 0.62$ (1 in. slab), based on a conductivity of 3.00 per 1 in.

[b] Nominal thicknesses specified—actual thicknesses used in computations.

[c] No built-up roofing. The value for corrugated iron is obtained by assuming that the surface area is increased 50 per cent.