

HEATING VENTILATING AIR CONDITIONING GUIDE 1938

TABLE 2. CONDUCTIVITIES (*k*) AND CONDUCTANCES (*C*) OF BUILDING MATERIALS AND INSULATORS—Continued

The coefficients are expressed in Btu per hour per square foot per degree Fahrenheit per 1 in. thickness, unless otherwise indicated.

Material	Description	DENSITY (Lb per Cu Ft)	MEAN TEMP. (Deg Fahr)	CONDUCTIVITY (<i>k</i>) OR CONDUCTANCE (<i>C</i>)	RESISTIVITY OR RESISTANCE ($\frac{1}{k}$ or $\frac{1}{C}$)	AUTHORITY
INSULATION—LOOSE FILL OR BAT TYPE —Continued						
FIBER	Fibrous material made from dolomite and silica	1.50	75	0.27	3.70	(3)
	Fibrous material made from slag	9.40	103	0.27	3.70	(1)
GLASS WOOL	Fibrous material 25 to 30 microns in diameter, made from virgin bottle glass	1.50	75	0.27	3.70	(3)
GRANULAR	Made from combined silicate of lime and alumina	4.20	72	0.24	4.17	(3)
	Made from expanded aluminum-magnesium silicate	6.20	42	0.32	3.12	(3)
GYPSUM	Cellular, dry	30.00	90	1.00	1.00	(1)
	" " " "	24.00	90	0.77	1.30	(1)
	" " " "	18.00	90	0.59	1.69	(1)
	" " " "	12.00	90	0.44	2.27	(1)
	Flaked, dry and fluffy	34.00	90	0.60	1.67	(1)
	" " " "	26.00	90	0.52	1.92	(1)
	" " " "	24.00	75	0.48*	2.08	(3)
	" " " "	19.80	90	0.35	2.86	(1)
	" " " "	18.00	75	0.34	2.94	(3)
MINERAL WOOL	All forms, typical	—	—	0.27*	3.70	—
REGRANULATED CORK	About 3/8-in. particles	8.10	90	0.31	3.22	(1)
ROCK WOOL	Fibrous material made from rock	21.00	90	0.30	3.33	(1)
	" " " "	18.00	90	0.29	3.45	(1)
	" " " "	14.00	90	0.28	3.57	(1)
	" " " "	10.00	90	0.27*	3.70	(1)
	Rock wool with a binding agent	14.50	77	0.33	3.03	(1)
	Rock wool with fax, straw pulp, and binder	14.50	75	0.38	2.63	(3)
	Rock wool with vegetable fibers	11.50	72	0.31	3.22	(3)
SAWDUST	Various	12.00	90	0.41	2.44	(4)
SHAVINGS	Various from planer	8.80	90	0.41	2.44	(1)
	From maple, beech and birch (coarse)	13.20	90	0.36	2.78	(1)
	Redwood bark	3.00	90	0.31	3.22	(1)
INSULATION—RIGID						
CORKBOARD	Typical	—	—	0.30*	3.33	—
	No added binder	14.00	90	0.34	2.94	(1)
	" " " "	10.60	90	0.30	3.33	(1)
	" " " "	7.00	90	0.27	3.70	(1)
	" " " "	5.40	90	0.25	4.00	(1)
	Asphaltic binder	14.50	90	0.32	3.12	(1)
FIBER	Typical	—	—	0.33*	3.03	—
	Chemically treated hog hair covered with film of asphalt	10.00	75	0.28	3.57	(3)
	Made from corn stalks	15.00	71	0.33	3.03	(3)
	" " exploded wood fibers	17.90	78	0.36	3.12	(4)
	" " hard wood fibers	15.20	70	0.32	3.12	(3)
	Insulating plaster 9/10-in. thick applied to 3/4-in. plaster board base	54.00	75	1.07†	0.93	(3)
	Made from licorice roots	16.10	81	0.34	2.94	(3)
	Made from 85% magnesia and 15% asbestos	19.30	86	0.51	1.96	(1)
	Made from shredded wood and cement	24.20	72	0.46	2.17	(3)
	" " sugar cane fiber	13.50	70	0.33	3.03	(3)
	Sugar cane fiber insulation blocks encased in asphalt membrane	13.80	70	0.30	3.33	(3)
	Made from wheat straw	17.00	68	0.33	3.03	(3)
	" " wood fiber	15.90	72	0.33	3.03	(3)
	" " " "	15.00	70	0.33	3.03	(3)
	" " " "	—	52	0.33	3.03	(6)
	" " " "	8.50	72	0.29	3.45	(3)
	" " " "	15.20	—	0.33	3.03	(3)
	" " " "	16.90	90	0.34	2.94	(1)
BUILDING BOARDS						
ASBESTOS	Compressed cement and asbestos sheets	123.00	86	2.70	0.37	(1)
	Corrugated asbestos board	20.40	110	0.48	2.08	(2)

For notes see Page 97.

CHAPTER 5. HEAT TRANSMISSION COEFFICIENTS AND TABLES

TABLE 2. CONDUCTIVITIES (*k*) AND CONDUCTANCES (*C*) OF BUILDING MATERIALS AND INSULATORS—Continued

The coefficients are expressed in Btu per hour per square foot per degree Fahrenheit per 1 in. thickness, unless otherwise indicated.

Material	Description	DENSITY (Lb per Cu Ft)	MEAN TEMP. (Deg Fahr)	CONDUCTIVITY (<i>k</i>) OR CONDUCTANCE (<i>C</i>)	RESISTIVITY OR RESISTANCE ($\frac{1}{k}$ or $\frac{1}{C}$)	AUTHORITY
BUILDING BOARDS —Continued						
ASBESTOS	Pressed asbestos mill board	60.50	86	0.84	1.19	(1)
	Sheet asbestos	48.30	110	0.29	3.45	(2)
GYPSUM	Gypsum between layers of heavy paper	62.80	70	1.41	0.71	(3)
	Rigid, gypsum between layers of heavy paper (3/8-in. thick)	53.50	90	2.60†	0.38	(1)
	Gypsum mixed with sawdust between layers of heavy paper (0.39-in. thick)	60.70	90	3.60†	0.28	(1)
PLASTER BOARD	(3/4 in.)	—	—	3.73†*	0.27	—
	(1/2 in.)	—	—	2.82†*	0.35	—
ROOFING CONSTRUCTION						
ROOFING	Asphalt, composition or prepared	70.00	75	6.50†*	0.15	(3)
	Built up—3/8-in. thick	—	—	3.53†*	0.28	—
	Built up, bitumen and felt, gravel or slag surfaced	—	—	1.33	0.75	(2)
	Plaster board, gypsum fiber concrete and 3-ply roof covering 2 1/2 in. thick	52.40	76	0.58†	1.72	(4)
SHINGLES	Asbestos	65.00	75	6.00†*	0.17	(3)
	Asphalt	70.00	75	6.50†*	0.15	(3)
	Slate	201.00	—	10.37*	0.10	(7)
	Wood	—	—	1.28†*	0.78	—
PLASTERING MATERIALS						
PLASTER	Cement	—	—	8.00	0.13	(2)
	Gypsum, typical	—	—	3.30*	0.30	—
	Thickness 3/8 in.	—	73	8.80†	0.11	(4)
METAL LATH AND PLASTER	Total thickness 3/4 in.	—	—	4.40†*	0.23	—
WOOD LATH AND PLASTER	3/8-in. plaster, total thickness 3/4 in.	—	70	2.50†*	0.40	(4)
BUILDING CONSTRUCTIONS						
FRAME	1-in. fir sheathing and building paper	—	30	0.71†*	1.41	(4)
	1-in. fir sheathing, building paper, and yellow pine lap siding	—	20	0.50†*	2.00	(4)
	1-in. fir sheathing, building paper and stucco	—	20	0.55	1.82	(4)
	Pine lap siding and building paper—siding 4 in. wide	—	16	0.85†*	1.18	(4)
	Yellow pine lap siding	—	—	1.28†*	0.78	—
FLOORING	Maple—across grain	40.00	75	1.20	0.83	(3)
	Battleship linoleum (3/4 in.)	—	—	1.36†*	0.74	—
AIR SPACE AND SURFACE COEFFICIENTS						
AIR SPACES	Over 3/4-in. faced with ordinary building materials	—	40	1.10†*	0.91	(4)
SURFACES, ORDINARY	Still air (f)	—	—	1.65†*	0.61	(4)
	15 mph—(f)	—	—	6.00†*	0.17	(4)
SURFACE, ROUGH STUCCO	15 mph—(f)	—	—	9.00†*	0.11	(4)
SURFACE, BRIGHT ALUMINUM	Still air (f)h	—	—	0.80†	1.25	(8)
AIR SPACES FACED WITH BRIGHT ALUMINUM FOIL						
	Air space, faced one side with bright aluminum foil, over 3/4-in. wide	—	50	0.46†*	2.17	(4)
	Air space, faced one side with bright aluminum foil, 3/4-in. wide	—	50	0.62†	1.61	(4)
	Air space, faced both sides with bright aluminum foil, over 3/4-in. wide	—	50	0.41†*	2.44	(4)
	Air space, faced both sides with bright aluminum foil, 3/4-in. wide	—	50	0.57†	1.75	(4)

For notes see Page 97.