

Conductance and Resistance Values for Wall-Insulation Materials

Material	Description	Conductivity <i>k</i> , Btu/(h) (ft²) (°F/in.)	Thickness (in.)	Conductance <i>C</i> , Btu/(h) (ft²) (°F)	Resistance <i>R</i> , 1/[Btu/ (h) (ft²) (°F)]
Fiber-glass roof insulation			$\frac{15}{16}$	0.27	3.70
			$1\frac{1}{16}$	0.24	4.17
			$1\frac{3}{16}$	0.19	5.26
			$1\frac{5}{8}$	0.15	6.67
			$1\frac{7}{8}$	0.13	7.69
			$2\frac{1}{4}$	0.11	9.09
Urethane roof insulation	Thickness includes membrane roofing on both sides	0.13	$\frac{4}{5}$	0.19	5.26
			1	0.15	6.67
			$1\frac{1}{5}$	0.12	8.33

(continued)

# Conductance and Resistance Values for Wall-Insulation Materials

Material	Description	Conductivity <i>k</i> , Btu/(h) (ft <sup>2</sup> ) (°F/in.)	Thickness (in.)	Conductance <i>C</i> , Btu/(h) (ft <sup>2</sup> ) (°F)	Resistance <i>R</i> , 1/[Btu/ (h) (ft <sup>2</sup> ) (°F)]
Styrofoam SM and TG	2.1lb/ft <sup>3</sup>	0.19	$\frac{3}{4}$	0.25	3.93
			1	0.19	5.26
			$1\frac{1}{2}$	0.13	7.89
			2	0.95	10.52
Wood shredded	Cemented in preformed slabs	0.60	1	0.60	1.67
Insulating board	Building and service board, decorative ceiling panels	0.38	$\frac{3}{8}$	1.01	0.99
			$\frac{1}{2}$	0.76	1.32
			$\frac{9}{16}$	0.68	1.48
			$\frac{3}{4}$	0.51	1.98
Thermal, acoustical fiber glass		0.39	$2\frac{3}{4}$	0.14	7.00
		0.36	4	0.09	11.00
		0.34	$6\frac{1}{2}$	0.05	19.00
Corkboard	6.4lb/ft <sup>3</sup>	0.26	1	0.26	3.85
Expanded polystyrene					
Extruded	1.8lb/ft <sup>3</sup>	0.25	1	0.25	4.00
Molded beads	1.0lb/ft <sup>3</sup>	0.26	1	0.26	3.85
Urethane foam thurance (dow chemical)	1.9lb/ft <sup>3</sup>	0.17	$\frac{3}{4}$	0.23	4.41
			$1\frac{1}{2}$	0.11	8.82
			2	0.09	11.76
Fiberglass perimeter			1	0.23	4.30
Insulation			$1\frac{1}{4}$	0.19	5.40
Fiberglas form board			1	0.25	4.00

Source: Courtesy of Johns-Mansville, Denver, CO.