5.1.3 Thermal Performance of Insulation

	R-Value per Inch (1)			R-Value per Inch (1)
Fiberglass (2)			Perlite/Vermiculite	
Batts	3.1 - 4.3	(3)	Loose-Fill	2.1 - 3.7
Loose-Fill	2.5 - 3.7		Foam Boards	
Spray-Applied	3.7 - 3.9		Expanded Polystyrene	3.9 - 4.4
Rock Wool (2)			Polyisocyanurate/	
Loose-Fill	2.5 - 3.7		Polyurethane	5.6 - 7.0
Cellulose			Phenolic	4.4 - 8.2
Loose-Fill	3.1 - 3.7		Reflective Insulation	2 - 17
Spray-Applied	2.9 - 3.5		Vacuum Powder Insulation	25 - 30
			Vacuum Insulation Panel	20 - 100

Note(s): 1) Hr-SF-F/Btu-in. Does not include the effects of aging and settling. 2) Mineral fiber. 3) System R-Value depends on heat-flow direction and number of air spaces.

Source(s): ASHRAE, 1997 ASHRAE Handbook: Fundamentals, p. 24-4, 22-5; DOE, Insulation Fact Sheet, Jan. 1988, p. 6; Journal of Thermal Insulation, 1987, p. 81-95; ORNL, ORNL/SUB/88-SA835/1, 1990; ORNL, Science and Technology for a Sustainable Energy Future, Mar. 1995, p. 17; and ORNL for vacuum insulation panel.