

R VALUES FOR VARIOUS MATERIALS¹

R is the reciprocal of C (Conductance) or movement of heat through a unit area of surface per unit temperature difference between the two sides. R = resistance to heat flow.

| Material | R | Material | R |
|--|-----------|-------------------------------------|------|
| Asbestos cement board 0.125" | 0.03 | Concrete blocks, 12" | 1.28 |
| 0.25" | 0.06 | Flat, single glass, vertical | 0.91 |
| 0.5" | 0.45 | Flat, single glass, horizontal | 0.81 |
| Vegetable fiber board 0.5" | 1.32 | Storm windows, 1 to 4" space | 2.00 |
| Nail base sheathing, 0.5" | 1.14 | Plywood 0.25" | 0.31 |
| Sound deadening board, 0.5" | 1.35 | 0.5" | 0.62 |
| Tile, plain or acoustic, 0.5" | 1.25 | 0.75" | 0.93 |
| Wood subfloor, 0.75" | 0.94 | Laminated paper board 1" | 2.00 |
| Vapor barrier, felt | 0.06 | Hardboard, medium density 1.0" | 1.37 |
| Vapor barrier, plastic | Negl. | Particle board, medium density 1.0" | 1.06 |
| Carpet and fibrous pad, 1.0" | 2.08 | Tile, 1.0" | 0.05 |
| Cork tile, 0.125" | 0.28 | Wood, hardwood, 0.75" | 0.68 |
| Cellular glass, 1.0" | 2.63 | Mineral fiber, rock wool, no cover. | |
| Expanded polystyrene, 1.0" | 4.00 | Insulated batt 2-2.75" | 7 |
| Expanded polystyrene, beads, 1" | 3.57 | 3-3.50" | 11 |
| Expanded polyurethane, 1" | 6.25 | 3.5-6.5" | 19 |
| Loose fill milled paper or wood pulp, 1" | 3.70 | 6-7" | 22 |
| Loose fill sawdust or shavings, 1" | 2.22 | 8.5" | 30 |
| Concrete, light weight | | Mineral fiber, resin binder, 1" | 3.45 |
| Varies with density, 1" | 0.19-1.43 | Mineral fiberboard, tile, 1" | 2.86 |
| Clay tile, 1 cell deep | 0.80 | Wood shredded, 1" loose fill | 1.67 |
| | | Perlite, expanded, 1", loose fill | 2.70 |

¹Taken from the 1977 ASHRAE Fundamentals Handbook.

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R Values (continued from page 3)

| Material | R |
|--|-------|
| Loose fill, rock wool 10.25-13.75" | 30 |
| Sand and gravel concrete | 0.11 |
| Brick, common, 1" | 0.20 |
| Asphalt shingles | 0.44 |
| Wood siding, bevel | 0.95 |
| Insulating glass, 0.25" air space vertical | 1.72 |
| Insulating glass, 0.5" air space vertical | 2.04 |
| Insulating glass 0.5" air space horizontal | 1.69 |
| Walls, Wood siding, 0.5" asphalt sheathing, 3.5" air space, gypsum wallboard | |
| Between framing: | 4.44 |
| At framing: | 7.81 |
| Insulate with 3.5" R-11 blanket insulation | |
| Between framing: | 14.43 |
| At framing: | 7.81 |

| Material | R |
|---|------|
| Common brick, 8", 1x3" vertical framing, gypsum wallboard | |
| Between furring: | 3.91 |
| At furring: | 3.84 |
| Insulate with 1" extruded polysterene | |
| Between furring: | 7.90 |
| At furring: | — |
| Masonry wall, face brick 4", cement mortar 0.5", concrete block 8", reflective air space 0.75", 1x3 furring, gypsum wallboard | |
| Between furring: | 6.33 |
| At furring: | 4.50 |
| Replace cinder block with 6" light weight aggregate, cores filled. | |
| Between furring: | 7.60 |
| At furring: | 5.77 |

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