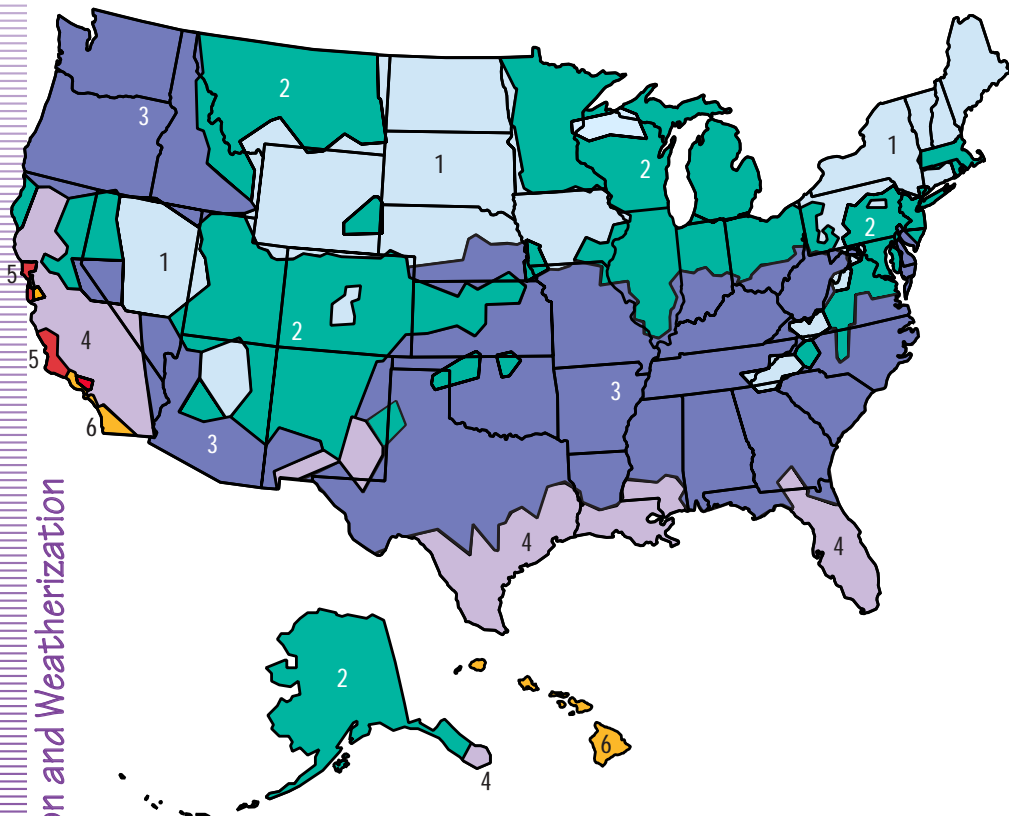


U.S. Department of Energy Recommended* Total R-Values for New Construction Houses in Six Insulation Zones



Insulation and Weatherization

*These recommendations are cost-effective levels of insulation based on the best available information on local fuel and materials costs and weather conditions. Consequently, the levels may differ from current local building codes. In addition, the apparent fragmentation of the recommendations is an artifact of these data and should not be considered absolute minimum requirements.

Zone	Gas	Heat pump	Fuel oil	Electric furnace	Ceiling			Floor	Crawl space (B)	Slab edge	Basement	
					Attic	Cathedral	Wall (A)				Interior	Exterior
1	✓	✓	✓		R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
1				✓	R-49	R-60	R-28	R-25	R-19	R-8	R-19	R-15
2	✓	✓	✓		R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
2				✓	R-49	R-38	R-22	R-25	R-19	R-8	R-19	R-15
3	✓	✓	✓	✓	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
4	✓	✓	✓		R-38	R-38	R-13	R-13	R-19	R-4	R-11	R-4
4				✓	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
5	✓				R-38	R-30	R-13	R-11	R-13	R-4	R-11	R-4
5		✓	✓		R-38	R-38	R-13	R-13	R-19	R-4	R-11	R-4
5				✓	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
6	✓				R-22	R-22	R-11	R-11	R-11	(C)	R-11	R-4
6		✓	✓		R-38	R-30	R-13	R-11	R-13	R-4	R-11	R-4
6				✓	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10

- (A) R-18, R-22, and R-28 exterior wall systems can be achieved by either cavity insulation or cavity insulation with insulating sheathing. For 2 in x 4 in walls, use either 3-1/2 in thick R-15 or 3-1/2 in thick R-13 fiber glass insulation with insulating sheathing. For 2 in x 6 in walls, use either 5-1/2 in thick R-21 or 6-1/4 in thick R-19 fiber glass insulation.
- (B) Insulate crawl space walls only if the crawl space is dry all year, the floor above is not insulated, and all ventilation to the crawl space is blocked. A vapor retarder (e.g., 4- or 6-mil polyethylene film) should be installed on the ground to reduce moisture migration into the crawl space.
- (C) No slab edge insulation is recommended.

NOTE: For more information, see: Department of Energy Insulation Fact Sheet (D.O.E./CE-0180). Energy Efficiency and Renewable Energy Clearinghouse, P.O. Box 3048, Merrifield, VA 22116; phone: (800) 363-3732; www.ornl.gov/roofs+walls/insulation/ins_11.html