

R-Values of Common Building Materials!

The R-value of a material determines how quickly heat is conducted across it. The values below are some of the more common R-factors for surfaces found on buildings in the U.S.

Exterior Walls with Siding

Exterior Walls with Siding Concrete block (8")	R-Value
Concrete block (8")	2
with foam insulated cores	20
with 4" on uninsulated stud wall	4.3
with 4" insulated stud wall	14
Brick (4")	R-Value
with 4" uninsulated stud wall	4
with 4" insulated stud wall	14
Wooden Frame	R-Value
Uninsulated with 2" x 4" construction	4.6
with 1 1/2" fiberglass	9
with 3 1/2" fiberglass; studs 16" o.c.	12
with 3 1/2" fiberglass and 1" foam	20
StrongGreen™ Structural Panel	R-Value
3 1/2" thick polyurethane panel X 24" Wide	27
6" thick polyurethane panel	45
3 1/2" thick polyurethane panel w/ceramic coating	47
6" thick polyurethane panel W/ceramic coating	65

Floor

Floor Over unheated basement or crawl space vented to outside	R-Value
Uninsulated floor	4.3
6" fiberglass floor insulation	25
Over sealed, unheated, completely underground basement	R-Value
Uninsulated floor	8
with 1" foam on basement walls	19
with 3 1/2 fiberglass on basement walls	20
Insulated floor, 6" fiberglass	43
Concrete Slab	R-Value
No insulation	11
1" foam perimeter insulation	46
2" foam perimeter insulation	65
StrongGreen™ Structural Panel	R-Value
3 1/2" thick polyurethane panel X 24" Wide	27
6" thick polyurethane panel	45
3 1/2" thick polyurethane panel w/ceramic coating	47
6" thick polyurethane panel W/ceramic coating	65

Exterior Doors

(Excluding sliding glass doors)

Calculate glass area of door as window

Wood Door	R-Value
1 1/2" no storm door	2.7
1 1/2" with 1" storm door	4.3
1 2/3" solid core door	3.1
Steel with Foam Core Door	R-Value
1 3/4" Pella	13
3/4" Therma-Tru	16

Roof / Ceiling

Material	R-Value
No Insulation	3.3
3 1/2" fiberglass	13
6" fiberglass	20
6" cellulose	23
3 1/2" thick polyurethane panel X 24" Wide	27
12" fiberglass	43
6" thick polyurethane panel X 24" Wide	45
12" cellulose	46
3 1/2" thick polyurethane panel w/ceramic coating	47
14" cellulose	54
6" thick polyurethane panel W/ceramic coating	65

Glass	R-Value	Low Emissivity	Drapes	Quilts
Single pane	0.9	1.1	1.4	3.2
Single w/storm window	2		2.5	4.2
Double pane, 1/4" air space	1.7		2.2	4
1/2" air space	2	2.99	2.5	4.3
Triple pane, 1/4" air space	2.6		3	4.8