

APPENDIX A WEIGHTS OF BUILDING MATERIALS

SECTION A101 GENERAL

SECTION A102 DEAD LOADS

In estimating dead loads for purposes of design, the actual weights of materials and constructions shall be used, provided that in the absence of definite information, values satisfactory to the building official may be assumed.

Dead loads of typed building materials and constructions are listed in Table A1 and Table A2.

**TABLE A1
DEAD LOAD IN POUNDS PER SQUARE FOOT**

COMPONENT	LOAD	COMPONENT	LOAD
CEILING			
Acoustical fiber tile	1	Rigid insulation, 1/2-in.	0.75
Gypsum board (per 1/8 in.)	0.55	Skylight, metal frame, 3/8-in. wire glass	8
Mechanical duct allowance	4	Slate, 3/16-in.	7
Plaster on tile or concrete	5	Slate, 1/4-in.	10
Plaster on wood lath	8	Waterproofing membranes:	
Suspended steel channel system	2	Bituminous, gravel covered	5.5
Suspended metal lath and cement plaster	15	Liquid applied	1.0
		Bituminous, smooth surface	1.5
Suspended metal lath and gypsum plaster	10	Single-ply, sheet (Fully adhered, mechanically attached)	0.7
Wood furring suspension system	2.5	Single-ply, sheet (Ballasted)	11.0
COVERINGS, ROOF AND WALL		Wood sheathing (per in.)	3
Asbestos-cement shingles	4	Wood shingles	3
Asphalt shingles	2	Wood structural panel (per 1/8 in.)	0.4
Cement tile	16		
Clay tile (for mortar add 10 lb):		FLOOR FILL	
Book tile, 2-in.	12	Cinder concrete, per in.	9
Book tile, 3-in.	20	Lightweight concrete, per in.	8
Ludowici	10	Sand, per in.	8
Roman	12	Stone concrete, per in.	12
Spanish	19		
Composition:		FLOORS AND FLOOR FINISHES	
Three-ply ready roofing	1	Asphalt block (2-in.), 1/2-in. mortar	30
Four-ply felt and gravel	5.5	Cement finish (1-in.) on stone-concrete fill	32
Five-ply felt and gravel	6	Ceramic or quarry tile (3/4-in.) on 1/2-in. mortar bed	16
Copper or tin	1	Ceramic or quarry tile (3/4-in.) on 1-in. mortar bed	23
Corrugated asbestos-cement roofing	4	Concrete fill finish (per in.)	12
Deck, metal, 20 gage	2.5	Hardwood flooring, 7/8-in.	4
Deck, metal, 18 gage	3	Linoleum or asphalt tile, 1/4-in.	1
Decking, 2-in. wood (Douglas Fir)	5	Marble and mortar on stone-concrete fill	33
Decking, 3-in. wood (Douglas Fir)	8	Slate (per inch)	15
Fiberboard, 1/2-in.	0.75	Solid flat tile on 1-in. mortar base	23
Gypsum sheathing, 1/2-in.	2	Subflooring, 3/4-in.	3
Insulation, roof boards (per in.):		Terrazzo (1 1/2-in.) directly on slab	19
Cellular glass	0.7	Terrazzo (1-in.) on stone-concrete fill	32
Fibrous glass	1.1	Terrazzo (1-in.), 2-in. stone concrete	32
Fiberboard	1.5	Wood block (3-in.) on mastic, no fill	10
Perlite	0.8	Wood block (3-in.) on 1/2-in. mortar base	16
Polystyrene foam	0.2		
Urethane foam with skin	0.5		

(continued)

TABLE A1 (continued)
DEAD LOAD IN POUNDS PER SQUARE FOOT

COMPONENT				LOAD	COMPONENT	LOAD
FLOORS, WOOD JOIST (NO PLASTER)— DOUBLE WOOD FLOOR					Concrete brick, light aggregate:	
					4-in.	33
					8-in.	68
					12 ¹ / ₂ -in.	98
					17-in.	130
					22-in.	160
Joist Sizes	12-in Spacing	16-in Spacing	24-in Spacing		Concrete block, heavy aggregate:	
2x6	6	5	5		8-in.	55
2x8	6	6	5		12-in.	85
2x10	7	6	6		Concrete block, light aggregate:	
2x12	8	7	6		8-in.	35
					12-in.	55
FRAME PARTITIONS					Structural clay tile, load bearing:	
Movable steel partitions				4	8-in.	42
Wood or steel studs, 1/2-in. gypsum board each side				8	12-in.	58
Wood studs, 2x4, unplastered				4	Brick, load-bearing structural clay tile backing:	
Wood studs, 2x4, plastered one side				12	4-in. + 4-in.	60
Wood studs, 2x4, plastered two sides				20	4-in. + 8-in.	75
					8-in. + 4-in.	102
FRAME WALLS					Furring tile (2 in.) on one side of masonry wall: Add	12
Exterior stud walls					Glass Block hollow units (1/4-in. mortar)	
2x4 @ 16 in., 5/8-in. gypsum, insulated, 3/8-in. siding				11	3 ⁷ / ₈ -in.	20
2x6 @ 16 in., 5/8-in. gypsum, insulated 3/8-in. siding				12	3 ¹ / ₈ -in.	16
Exterior stud walls with brick veneer				48		
Windows, glass, frame and sash				8		
MASONRY PARTITIONS						
Clay tile:						
4-in.				18		
6-in.				24		
8-in.				34		
Concrete block, heavy aggregate:						
4-in.				30		
6-in.				42		
8-in.				55		
12-in.				85		
Concrete block, light aggregate:						
4-in.				20		
6-in.				28		
8-in.				38		
12-in.				55		
MASONRY WALLS						
Clay brick, medium absorption:						
4-in.				39		
8-in.				79		
12 ¹ / ₂ -in.				115		
17-in.				155		
22-in.				194		
Concrete brick, heavy aggregate:						
4-in.				46		
8-in.				89		
12 ¹ / ₂ -in.				130		
17-in.				174		
22-in.				216		

For SI: 1 in = 25.4 mm, 1 psf = 47.8803 Pa.

**TABLE A2
DEAD LOAD IN POUNDS PER CUBIC FOOT**

COMPONENT	LOAD	COMPONENT	LOAD
Bituminous Products		Wrought	480
Asphaltum	81	Lead	710
		Lime	
Graphite	135	Hydrated, loose	32
Paraffin	56	Hydrated, compacted	45
Petroleum, crude	55	Masonry, ashlar	
Petroleum, refined	50	Granite	165
Petroleum, benzine	46	Limestone, crystalline	165
Petroleum, gasoline	42	Limestone, oolitic	135
Pitch	69	Marble	173
Tar	75	Sandstone	144
Brass	526	Masonry, brick	
Bronze	552	Hard (low absorption)	130
Cast-stone masonry (cement, stone, sand)	144	Medium (medium absorption)	115
Cement, portland, loose	90	Soft (high absorption)	100
Ceramic tile	150	Masonry, rubble mortar	
Charcoal	12	Granite	153
Cinder fill	57	Limestone, crystalline	147
Cinders, dry, in bulk	45	Limestone, oolitic	138
Coal		Marble	156
Anthracite, piled	52	Sandstone	137
Bituminous, piled	47	Mortar, hardened	
Lignite, piled	47	Cement	130
Peat, dry, piled	23	Lime	110
Concrete, plain		Particleboard	45
Cinder	108	Riprap (not submerged)	
Expanded-slag aggregate	100	Limestone	83
Haydite (burned-clay) aggregate	90	Sandstone	90
Slag	132	Sand	
Stone (including gravel)	144	Clean and dry	90
Vermiculite and perlite aggregate, nonload-bearing	25-50	River, dry	106
Other light aggregate, load-bearing	70-105	Slag	
Concrete, reinforced		Bank	70
Cinder	111	Bank screenings	108
Slag	138	Machine	96
Stone (including gravel)	150	Sand	52
Copper	556	Slate	172
Cork, compressed	14.4	Steel	489
Earth (not submerged)		Stone, quarried, piled	
Clay, dry	63	Basalt, granite, gneiss	96
Clay, damp	110	Limestone, marble, quartz	95
Clay and gravel, dry	100	Sandstone	82
Silt, moist, loose	78	Shale	92
Silt, moist, packed	96	Greenstone, hornblende	107
Silt, flowing	108	Terra cotta, architectural	
Sand and gravel, dry, loose	100	Voids filled	120
Sand and gravel, dry, packed	110	Voids unfilled	72
Sand and gravel, wet	120	Tin	459
Earth (submerged)		Water	
Clay	80	Fresh	62.4
Soil	70	Sea	64
River mud	90	Wood, seasoned	
Sand or gravel	60	Ash, commercial white	41
Sand or gravel, and clay	65	Cypress, southern	34
Gravel, dry	104	Fir, Douglas, coast region	34
Gypsum, loose	70	Hem fir	28
Gypsum wallboard	50	Oak, commercial and reds and whites	47
Ice	57.2	Pine, southern yellow	37
Iron		Redwood	28
Cast	450	Spruce, red, white, and sitka	29
		Western hemlock	32
		Wood structural panel	36
		Zinc, rolled, sheet	449

For SI: 1 in = 25.4 mm, 1 psf = 47.8803 Pa.

