

APPENDIX G

UNIT DEAD LOADS FOR DESIGN PURPOSES

The intent of 780 CMR Appendix G is to assist the designer and building official in establishing the minimum weights for materials commonly used in building construction. Some material assemblies have a range in weight. A typical figure is indicated, but when there is reason to suspect a considerable deviation, the actual weight should be determined.

Note on use of 780 CMR Appendix G tables: When making calculations based on the tables in 780 CMR Appendix G, the weights of masonry include mortar but not plaster. For plaster, add 5 psf for each face plastered. Values given represent averages. In some cases there is a considerable range of weight for the same construction. For metric conversion, 1 psf equals 4.882 kg/m³.

Table G-1
UNIT DESIGN DEAD LOADS FOR CONCRETE SLABS

Concrete slabs	Pounds per square foot
Concrete, reinforced stone, per inch of thickness	12½
Concrete, reinforced lightweight sand, per inch of thickness	9½
Concrete, reinforced, lightweight, per inch of thickness	9
Concrete, plain stone, per inch of thickness	12
Concrete, plain, lightweight, per inch of thickness	8½

Table G-2
UNIT DESIGN DEAD LOADS FOR RIBBED SLABS

	Pounds per square foot					
Ribbed slabs Depth in inches (rib depth plus slab thickness)*	Width of rib, in inches					
	4	5	6	7	8	9
12-inch clay tile fillers (normal weight concrete)						
4 plus 2	49	51	52	54	-	-
6 plus 2	60	63	65	67	-	-
8 plus 2½	79	82	85	87	-	-
10 plus 3	96	100	103	106	-	-
12 plus 3	108	112	116	120	-	-
20-inch wide forms:	45	48	50	50	-	-
6 plus 2½	51	54	57	60	-	-
8 plus 2½	57	60	64	68	-	-
10 plus 2½	63	67	72	76	-	-
12 plus 2½	-	74	79	84	-	-
14 plus 2½	-	-	88	93	98	-
16 plus 2½	-	-	-	111	118	-
20 plus 2½		-				

* Make appropriate allowances for tapered ends.

Table G-2 (continued)

UNIT DESIGN DEAD LOADS FOR RIBBED SLABS

Ribbed slabs Depth,, in inches (rib depth plus slab thickness)*	Pounds Per square foot					
	Width of rib, in inches					
	4	5	6	7	8	9
30-inch wide forms:						
6 plus 2½	41	43	45	47	-	-
8 plus 2½	45	47	50	53	-	-
10 plus 2½	49	52	55	58	-	-
12 plus 2½	53	57	60	64	-	-
14 plus 2½	-	62	66	70	-	-
16 plus 2½	-	-	72	76	80	-
20 plus 2½	-	-	-	90	95	101
Two-way clay tile fillers (12x12):						
4 plus 2	61	62	64	-	-	-
6 plus 2	87	89	90	-	-	-
8 plus 2½	100	103	107	-	-	-
10 plus 3	121	126	131	-	-	-
12 plus 3	136	141	146	-	-	-

Table G-3

UNIT DESIGN DEAD LOADS FOR WAFFLE SLABS

Waffle slabs Depth, in inches (Rib depth plus slab thickness)	Pounds per square foot
19x19, 5 @ 24	
6 plus 2½	66
8 plus 2½	78
10 plus 2½	84
12 plus 2½	101
30x30, 6 @ 36	
8 plus 3	73
10 plus 3	83
12 plus 3	95
14 plus 3	106
16 plus 3	114
20 plus 3	135

Table G-4
UNIT DESIGN DEAD LOADS FOR FLOOR FINISH

Floor finish	Pounds per square foot
Double _-inch wood on sleepers, light concrete fill	19
Double _-inch wood on sleepers, stone concrete fill	28
Single _-inch wood on sleepers, light concrete fill	16
Single _-inch wood on sleepers, light concrete fill	25
3-inch wood block on mastic, no fill	10
1-inch cement finish on stone concrete fill	32
1-inch terrazzo on stone concrete fill	32
Marble and mortar on stone concrete fill	33
Linoleum on stone concrete fill	32
Linoleum on light concrete fill	22
1½-inch asphalt mastic flooring	18
3-inch wood block on ½-inch mortar base	16
Solid flat tile on 1-inch mortar base	23
2-inch asphalt block, ½- mortar	30
1-inch terrazzo, 2-inch stone concrete	32
Floor finish tile per inch depth	12
Cement finish per inch depth	12
Gypsum slabs per inch depth	4
Precast concrete plank per inch	(as determined by test)
Hardwood flooring per inch depth	4
Underflooring per inch depth	3
Linoleum	2
Asphalt tile	2
Brick pavers per inch thickness	10

Table G-5
UNIT DESIGN DEAD LOADS FOR WATERPROOFING

Waterproofing	Pounds per square foot
Five-ply membrane	5

Table G-6
UNIT DESIGN DEAD LOADS FOR FLOOR FILL

Floor Fill	Pounds per square foot
Cinder fill, per inch	5
Cinder concrete per inch	9
Lightweight concrete, per inch	7
Sand, per inch	8
Stone, concrete, per inch	12

Table G-7
UNIT DESIGN DEAD LOADS FOR WOOD JOIST FLOORS

Wood joist floors (no plaster) - double wood floor joist sizes in inches	Pounds per square foot	
	12-inch spacing	16-inch spacing
2 x 6	6	5
2 x 8	6	6
2 x 10	7	6
2 x 12	8	7
3 x 6	7	6
3 x 8	8	7
3 x 10	9	8

3 x 12	11	9
3 x 14	12	10

Table G-8
UNIT DESIGN DEAD LOADS FOR MATERIALS

Materials	Pounds per cubic foot
Cast stone masonry (cement, stone, sand)	144
Cinder fill	57
Concrete, plain:	
Cinder.....	108
Expanded slag aggregate	100
Haydite (burned clay aggregate).....	90
Slag	132
Stone (including gravel).....	144
Vermiculite and perlite aggregate, nonloadbearing.....	25-50
Other light aggregate, loadbearing.....	70-105
Concrete, reinforced:	
Cinder.....	111
Slag	138
Stone (including gravel).....	150
Earth (dry).....	96
Earth (damp)	108
Earth (wet)	120
Cork.....	15
Masonry, ashler:	
Granite	168
Limestone, crystalline.....	168
Limestone, oolitic	135
Marble	173
Sandstone	144
Masonry, rubble mortar:	
Granite	153
Limestone, crystalline.....	147
Limestone, oolitic	138
Marble	156
Sandstone	137
Rubble stone masonry	156
Terra cotta, architectural:	
Voids filled	120
Voids unfilled	72
Timber, seasoned:	
Ash, commercial white	41
Cypress, southern.....	32
Fir, Douglas, Coast region	34
Oak, commercial reds and whites	45
Redwood	28
Spruce, red, white, and Sitka	28
Southern pine, short leaf	39
Southern pine, long leaf	48
Timber, hemlock.....	30

Table G-9
UNIT DESIGN DEAD LOADS FOR ROOF AND WALL COVERINGS

Roof and wall coverings	Pounds per square foot
Asphalt shingles	2
Cement asbestos shingles	4
Cement tile	16
Clay tile (for mortar add 10 lb):	
2-inch book tile	12
3-inch book tile	20
Roman	12
Ludowici	19
Composition:	10
Three-ply ready roofing	
Four-ply felt and gravel	1
Five-ply felt and gravel	5½
Copper or tin	6
Corrugated asbestos cement roofing	1
Fiber board, ½ inch	1-3
Formed sheet steel	(see manufacturer)
Formed steel decking	2
Gypsum sheathing, ½ inch	¾
Rigid insulation, ½ inch	3
Sheet lead	8
Skylight, metal frame, _-inch wired glass	7
Slate 3/16-inch	10
Slate ¼ inch	20
Spanish tile	3
Wood sheathing, per inch thickness	3
Wood shingles	

Table G-10
UNIT DESIGN DEAD LOADS FOR SUSPENDED CEILINGS

Suspended ceilings	Pounds per square foot
Cement on wood lath	12
Cement on metal lath	15
Gypsum on wood or metal lath	10
Plaster on tile or concrete	5
Suspended metal lath and gypsum plaster	10
Suspended metal lath and cement plaster	15
Plaster on wood lath	8

Table G-11
UNIT DESIGN DEAD LOADS FOR UNPLASTERED WALLS AND PARTITIONS

Walls and partitions (unplastered)	Pounds per square foot
4 -inch clay brick, high absorption	34
4 -inch clay brick, medium absorption	39
4 -inch clay brick, low absorption	46
4 -inch sand/lime brick	38
4 -inch concrete brick, heavy aggregate	46
4 -inch concrete, light aggregate.....	33
8 -inch clay brick, high absorption	69
8 -inch clay brick, medium absorption	79
8 -inch clay brick, low absorption	89
8 -inch sand/lime brick	74
8 -inch concrete brick, heavy aggregate	89
8 -inch concrete brick, light aggregate.....	68
12 -inch common brick	120
12 -inch pressed brick	130
12 -inch sand/lime brick	105
12½ - inch concrete brick, heavy aggregate	130
12½ - inch concrete brick, light aggregate.....	98
17 -inch clay brick, high absorption	134
17 -inch clay brick, medium absorption	155
17 -inch clay brick, low absorption	173
17 -inch sand/lime brick	138
17 -inch concrete brick, heavy aggregate	174
17 -inch concrete brick, light aggregate.....	130
22 -inch clay brick, high absorption	168
22 -inch clay brick, medium absorption	194
22 -inch clay brick, low absorption	216
22 -inch sand/lime brick	173
22 -inch concrete brick, heavy aggregate	216
22 -inch concrete brick, light aggregate.....	160
4 -inch brick, 4 inch load bearing structural clay - tile backing	60
4 -inch brick, 8 inch loadbearing structural clay - tile backing	75
8 -inch brick, 4 inch loadbearing structural clay - tile backing	102
8 -inch combination brick and concrete block.....	72
12 -inch combination brick and concrete block.....	90
8 -inch loadbearing structural clay tile	42
12 -inch loadbearing structural clay tile	58
8 -inch concrete block, heavy aggregate.....	55
12 -inch concrete block, heavy aggregate.....	85
8 -inch concrete block, light aggregate	38
12 -inch concrete block, light aggregate.....	55
2 -inch furring tile, one side of masonry wall, - add to above figures	12
4 -inch hollow concrete block - stone aggregate	30
-lightweight	20
6 -inch hollow concrete block - stone aggregate	42
-lightweight	30
8 -inch hollow concrete block.....	55
-lightweight	38
10 -inch hollow concrete block - stone aggregate	62
-lightweight	46
12 -inch hollow concrete block - stone aggregate	85
-lightweight	55
4 -inch solid concrete block - stone aggregate.....	45
-lightweight	34
6 -solid concrete block - stone aggregate.....	50
-lightweight	37

Table G-11 (continued)
UNIT DESIGN DEAD LOADS FOR UNPLASTERED WALLS AND PARTITIONS

Walls and partitions (unplastered)	Pounds per square foot
8 -inch solid concrete block - stone aggregate.....	67
-lightweight.....	48
10 -inch solid concrete block - stone aggregate.....	84
-lightweight.....	52
12 -inch concrete block - stone aggregate	108
-lightweight.....	72
4 -inch loadbearing clay tile.....	24
6 -inch loadbearing clay tile.....	36
2 -inch nonloadbearing clay tile.....	11
3 -inch nonloadbearing clay tile.....	18
4 -inch nonloadbearing clay tile.....	20
6 -inch nonloadbearing clay tile.....	30
8 -inch nonloadbearing clay tile.....	36
10 -inch nonloadbearing clay tile.....	40
4 -inch nonloadbearing hollow concrete block.....	20
6 -inch nonloadbearing hollow concrete block.....	30
8 -inch nonloadbearing hollow concrete block.....	40
T.C. 1½-inch split terra cotta furring.....	8
2 -inch split terra cotta furring.....	10
3 -inch split terra cotta furring.....	12
2 -inch hollow gypsum block.....	9.5
3 -inch hollow gypsum block.....	10
4 -inch hollow gypsum block.....	15
5 -inch hollow gypsum block.....	18
6 -inch hollow gypsum block.....	24
2 -inch solid gypsum block.....	12
3 -inch solid gypsum block.....	18
4 -inch solid gypsum block.....	24
2 -inch facing tile	15
4 -inch facing tile	25
6 -inch facing tile	38
2 -inch solid plaster.....	20
4 -inch solid plaster.....	32
4 -inch hollow plaster	22
Wood studs 2x4, unplastered	4
Wood studs 2x4, plastered one side.....	12
Wood studs 2x4, plastered two sides	20
4 -inch glass block	18

Table G-12
UNIT DESIGN DEAD LOADS FOR LATH AND PLASTER PARTITIONS

Lath and plaster partitions	Pounds per square foot
2 -inch solid cement on metal lath	25
2 -inch solid gypsum on metal lath.....	18
2 -inch solid gypsum on gypsum lath	18
2 -inch metal studs, gypsum and metal lath both sides.....	18
3 -inch metal studs, gypsum and metal lath both sides.....	19
4 -inch metal studs, gypsum and metal lath both sides.....	20
6 -inch wood studs, plaster and wood lath both sides.....	18
6 -inch wood studs, plaster and metal lath both sides.....	18
6 -inch wood studs, plaster and plaster boards both sides	18
6 -inch wood studs, unplastered gypsum board both sides (dry wall).....	10

Table G-13
UNIT DESIGN DEAD LOADS FOR PLASTER WORK

Plaster Work	Pounds per square foot
Gypsum (one side)	5
Cement (one side)	10
Gypsum on wood lath	8
Gypsum on metal lath	8
Gypsum on plaster board or fiber board	8
Cement on wood lath	10
Cement on metal lath	10