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/m^3.

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