1. Dead loads

Materials	
Wood structural panel	$36.0\ \text{pcf} = 5655 \dfrac{\text{newton}}{\text{meter}^3}$
Concrete reinforced stone (including gravel)	$150.0\ \text{pcf} = 23563 \dfrac{\text{newton}}{\text{meter}^3}$
Steel	$489.0\ \text{pcf} = 76816 \dfrac{\text{newton}}{\text{meter}^3}$
Gypsum,loose	$70.0\ \text{pcf} = 10996 \dfrac{\text{newton}}{\text{meter}^3}$
Earth (not submerged) sand and gravel (wet)	$120.0\ \text{pcf} = 18850 \dfrac{\text{newton}}{\text{meter}^3}$
Water	$62.4\ \text{pcf} = 9802 \dfrac{\text{newton}}{\text{meter}^3}$
Frame partitions	
Wood or steel studs, $\frac{1}{2}$in gypsum board inside	8 psf = 383 pascal
Wood studs, 2x4 unplastered	4 psf = 192 pascal
Wood studs, 2x4 plastered one side	12 psf = 575 pascal
Wood studs, 2x4 plastered two sides	20 psf = 958 pascal
Movable steel partitions	4 psf = 192 pascal
Frame walls	
Exterior stud wall 2x4 @ 16in, $\frac{5}{8}$ gypsum insulated, $\dfrac{3}{8}$ in siding	11 psf = 526 pascal
Exterior stud wall 2x6 @ 16in, $\frac{5}{8}$ gypsum insulated, $\dfrac{3}{8}$ in siding	12 psf = 575 pascal
Exterior stud wall with brick veneer	48 psf = 2298 pascal
Window, glass, frame and sash	8 psf = 383 pascal
Cladding	
Fiber cement panels, large format 38.4in × 102in	3.2 psf = 153 pascal
Fiber cement panels, small scale 9.6in × 102in	3.2 psf = 153 pascal
Perforated metal panel at exterior HVAC location	
Floor truss	
Single chord @ 24in o.c. spacing	3.2 psf = 153 pascal
Double chord @ 24in o.c. spacing	4.25 psf = 203 pascal
Sheating	
Roof sheating	3.5 psf = 167 pascal
Floor sheating	2.5 psf = 120 pascal
Ceilings	2.5 psf = 120 pascal

2. Live loads

Occupancy or use	Uniform	Concentrated	Notes
Private rooms and corridors serving them in multifamily dwelling	40.0 psf = 1915 pascal	-	*IBC-2015 Table 1607.1*
Stairs and exits	100.0 psf = 4788 pascal	300 pound = 1334 newton	*IBC-2015 Table 1607.1. Concentrated load on stair treads applied on an area of 2 inches by 2 inches*
Balconies and decks	same as occupancy served	-	*IBC-2015 Table 1607.1*
Garages (passenger vehicles only)	40.0 psf = 1915 pascal	-	*IBC-2015 Table 1607.1*
Cornices	60.0 psf = 2873 pascal	-	*IBC-2015 Table 1607.1*
Elevator machine room and control room grating	-	300 pound = 1334 newton	*IBC-2015 Table 1607.1. Concentrated load applied on an area of 2 inches by 2 inches*
Flat roof (not occupiable) + maintenace	20.0 psf = 958 pascal	300 pound = 1334 newton	*IBC-2015 Table 1607.1*
Yards and terraces, pedestrians	100.0 psf = 4788 pascal	-	*IBC-2015 Table 1607.1*
Sidewalks, vehicular driveways and yards, subject to trucking	250.0 psf = 11970 pascal	8000 pound = 35586 newton	*IBC-2015 Table 1607.1*

3. Snow loads

Ground snow load	$p_g = 60.0$ psf = 2873 pascal	*ASCE 7. Figure 7.1*
Exposure factor	$C_e = 1.0$	*ASCE 7. Table 7-2. Terrain category B, roof partially exposed*
Thermal factor	$C_t = 1.0$	*ASCE 7. Table 7-3.*
Snow load importance factor	$I_s = 1.0$	*ASCE 7. Table 7-4. Structure risk category II*
Snow load flat roof	$p_f = 0.7 \times C_e \times C_t \times I_s \times p_g = 0.7 \times 1.0 \times 1.0 \times 1.0 \times 60.0 = 42.0$ psf = 2873 pascal	*ASCE 7. Sect. 7.3*

4. Wind loads

Alternate all-heights method.		*IBC-2015, sect. 1609.6. Regularly shaped building, less than 75 feet in height, not sensitive to dynamic effects, not channeling effects or buffeting, simple diaphragm building*
Ultimate design wind speed	$V_{ult} = 115 \frac{\text{miles}}{\text{hour}} = 51 \frac{\text{meters}}{\text{second}}$	*IBC-2015, figure 1609.3(1). Risk category II building*
Velocity pressure exposure coefficient	$K_z = 0.72$	*ASCE 7, table 27.3.1. Exposure B, height above ground level $z \approx$ 33 feet*
Topographic factor	$K_{zt} = 1.0$	*ASCE 7, sect. 26.8*

Net pressure coefficients C_{net}. Main windforce-resisting frames and systems

IBC-2015, Table 1609.6.2, enclosed

Description	C_{net} + Internal pressure	C_{net} - Internal presure
Windward wall	0.43	0.73
Leeward wall	-0.51	-0.21
Sidewall	-0.66	-0.35
Parapet windward wall	1.28	
Parapet leeward wall	-0.85	
Flat roof	-1.09	-0.79

Design wind pressures P_{net}. Main windforce-resisting frames and systems

IBC-2015, sect. 1609.6.3

$P_{net} = 0.00256 \times V^2 \times K_z \times C_{net} \times K_{zt}$

Description	P_{net} + Internal pressure	P_{net} - Internal presure
Windward wall	10.5 psf = 501 pascal	17.8 psf = 852 pascal
Leeward wall	−12.4 psf = −595 pascal	−5.1 psf = −245 pascal
Sidewall	−16.1 psf = −770 pascal	−8.5 psf = −409 pascal
Parapet windward wall	31.2 psf = 1494 pascal	
Parapet leeward wall	−20.7 psf = −992 pascal	
Flat roof	−26.6 psf = −1272 pascal	−19.3 psf = −992 pascal

5. Earthquake loads

Parameter 0.2-second spectral response acceleration	$S_s = 0.045$	*IBC-2015, figure 1613.3.1(1). Site class B*
Parameter 1-second spectral response acceleration	$S_1 = 0.038$	*IBC-2015, figure 1613.3.1(2). Site class B*
Seismic design category	$S_1 \leq 0.04$ *and* $S_s \leq 0.15 \rightarrow$ SDS A	*IBC-2015, sect. 1613.3.1*
Site coefficients	$F_a = 1.0$, $F_v = 1.0$	*IBC-2015, tables 1613.3.3(1) and 1613.3.3(2). Site class B*
Maximum considered earthquake spectral response acceleration for short periods	$S_{MS} = F_a \cdot S_s = 0.045$	*IBC-2015, sect. 163.3.3*
	$S_{M1} = F_a \cdot S_1 = 0.038$	*IBC-2015, sect. 163.3.3*
Design spectral response acceleration parameters	$S_{DS} = \frac{2}{3} S_{MS} = 0.03$	*IBC-2015, sect. 163.3.4*
	$S_{D1} = \frac{2}{3} S_{M1} = 0.025$	*IBC-2015, sect. 163.3.4*