

Building Loads

Dead Load, D

Material	γ [pcf]
Concrete	150
Souther Pine	36.7
Structural Steel	490

USE SPRUCE PINE FIR FOR THE TYPICAL WOOD

MAKE SURE TO ACCOUNT FOR ADDITIONAL COLLATERAL DEAD LOAD FOR LIGHTS, MECHANICAL, PLUMBING, CEILING, FLOORING, ETC. TYPICALLY I WOULD USE 5.0 PSF FOR THESE THINGS

Component	γ_A [psf]
External 2x6 Wall	10
Internal 2x4 Wall	6
Existing External 2x6 Wall	46.7
Internal Floor Slab (includes 10 psf for internal walls)	16.5
Roof Slab	15
Roof Slab - Service area	13

I WOULD USE 80 PSF FOR THE UNIFORM LIVE LOAD FOR THE OFFICE AREA. THIS WOULD ACCOUNT FOR CORRIDORS AND THE MECHANICAL AREA. THEN YOU DON'T NEED TO USE AN ADDITIONAL DEAD LOAD FOR PARTITION LOADING

Live Load, L and Lr

Occupancy or Use	Uniform [psf]	Concentrated [lb]
Office Buildings - Offices	50	2,000
Office Buildings - Lobbies	100	2,000
Roof - Ordinary, flat, pitched, or curved unoccupied roofs	20	300

Snow, S

- $p_g = 37.1$ psf
- $p_f = 0.7 C_e C_t I_s p_g = 0.7 \times 0.9 \times 1.0 \times 1.0 \times 37.1 = 23.4$ psf
- $p_s = C_s p_f = 1.0 \times 23.4 = 23.4$ psf

GROUND SNOW LOAD FOR THIS AREA IS 30 PSF

I WOULD USE A C_t FACTOR OF 1.1

I WOULD USE A C_s FACTOR OF 1.1

I SEE THIS SNOW LOAD USED ALOT, BUT I THINK IT IS TOO LIGHT FOR THIS AREA. I WOULD TYPICALLY USE THE GROUND SNOW LOAD OF 30 PSF TO DESIGN ALL MY WOOD COMPONENTS. THIS IS JUST MY PERSONAL PREFERENCE

Wind, W

- Wind Speed: $V_{ult} = 107$ Vmph
- $q_z = 0.00256 V_{ult}^2 K_z K_{zt} K_d$
- $q_z = 0.00256 \times 107^2 \times 0.66 \times 1.0 \times 0.85 = 16.4$ psf
- $q_{ASD} = 0.6 q_z = 10$ psf

I TYPICALLY USE 115 VMPH FOR WIND IN THIS AREA

Earthquake, E

Parameter	Value
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Parameter	Value
Geotechnical Report No.	N/A - assuming min. soil bearing
Site Class	D ✓
Mapped Spectral Accelerations (S_S, S_1)	0.11, 0.06
Design Spectral Accelerations (S_{DS}, S_{D1})	0.099, 0.086
Seismic Design Category (SDC)	B
Design Base Shear	9.9 / 6.5 ~ 2% of Seismic Weight

FOR DESIGN I WOULD USE A PRESUMED VALUE OF 2000 PSF FOR THIS AREA. THIS SHOULD BE NOTED AND TO BE FIELD VERIFIED AT THE TIME OF CONSTRUCTION IF NO GEOTECHNICAL INVESTIGATION IS BEING DONE