



JOB NO.: U0000-000-000

DATE: 01/00/00

DESIGNED: 0

CHECKED: 0

PROJECT: 0.00

SUBJECT: STUDS & OTHER MEMBERS

DESIGN LOADS (psf)

	Dead	Live	Snow
Roof	15	20	35
Floor	15	40	
Exterior Wall	15		
Interior Wall	8		

LOADING PARAMETERS

Label:	2x4at24"O.C.	2x4at16"O.C.	2x6at24"O.C.	2x6at16"O.C.
Wind/Wall Tributary (ft)	2	1.33	2	1.33
Bending Axis	Strong	Strong	Strong	Strong
Roof Tributary 1 (ft)	20	20	20	20
Roof Tributary 2 (ft)	2	1.33	2	1.33
Floor Tributary 1 (ft)		10	10	20
Floor Tributary 2 (ft)	2	1.33	2	1.33
Additional Dead Load (lbs)				
Additional Floor Live Load (lbs)				
Additional Roof Live Load (lbs)				
Additional Snow Load (lbs)				
Location for Wind Loading	C&C Zone 4	C&C Zone 4	C&C Zone 4	C&C Zone 4
Mean Roof Height (ft)	35	35	35	35
Design Wind Speed (mph)	130	130	130	130
Exposure	C	C	C	C
Axial Loads (lbs):				
Dead	744	695	1044	894
Floor Live	0	532	800	1064
Roof Live	800	532	800	532
Snow	1400	931	1400	931
Bending Load (plf):				
Wind	95.7	63.6	95.7	63.6

MEMBER PROPERTIES

Strong-Axis Effective Length, l_{e1} (ft)	9.625	9.625	9.625	9.625
Weak-Axis Effective Length, l_{e2} (ft)	1	1	1	1
Compression Edge Unbraced Length, l_u (ft)	4.8125	4.8125	4.8125	4.8125
Grade	DFL#2	DFL#2	DFL#2	DFL#2
Size	2x4	2x4	2x6	2x6
Quantity of Members	1	1	1	1

SPECIAL CONDITIONS

Moisture Category	Normal	Normal	Normal	Normal
Temperature Category	$\leq 100^\circ$	$\leq 100^\circ$	$\leq 100^\circ$	$\leq 100^\circ$
Incising?	No	No	No	No
Repetitive Member Category	Rep. (Special)	Rep. (Special)	Rep. (Special)	Rep. (Special)
Finish Type	Flexible	Flexible	Flexible	Flexible

SECTION PROPERTIES

Width, b (in)	1.5	1.5	1.5	1.5
Depth, d (in)	3.5	3.5	5.5	5.5
Moment of Inertia, I (in ⁴)	5.359375	5.359375	20.796875	20.796875
Section Modulus, S (in ³)	3.0625	3.0625	7.5625	7.5625

DESIGN VALUES

F_{bx} (psi)	900	900	900	900
F_{by} (psi)	900	900	900	900
F_c (psi)	1350	1350	1350	1350
E_{xx} (psi)	1600000	1600000	1600000	1600000
E_{yy} (psi)	1600000	1600000	1600000	1600000
E_{minxx} (psi)	580000	580000	580000	580000
E_{minyy} (psi)	580000	580000	580000	580000

RESULTS

D+L	35%	57%	26%	28%
D+Lr	71%	56%	25%	19%
D+S	99%	75%	33%	25%
D+0.75L+0.75Lr	62%	68%	30%	28%
D+0.75L+0.75S	83%	83%	37%	33%
D+0.6W	148%	98%	61%	40%
D+0.75L+0.42W+0.75Lr	193%	168%	57%	39%
D+0.75L+0.42W+0.75S	361%	261%	64%	43%
Deflection Limit (L/)	120	120	120	120
Deflection (L/)	128	192	495	745
Column Slenderness, I_e/d	33.0	33.0	21.0	21.0
Beam Slenderness, R_B	13.6	13.6	17.1	17.1
Unity Check	361%	261%	64%	43%

WIND PRESSURE CALCULATIONS

Effective Wind Area	19.25	12.80125	19.25	12.80125
Effective Wind Area Rounded Up	10	10	10	10
Height & Exposure Coefficient	1.45	1.45	1.45	1.45
pn _{et30}	33	33	33	33
Topographic Factor, K _{zt}	1	1	1	1
Design C&C Wind Pressure (psf)	47.85	47.85	47.85	47.85
Design Bending Load, w (lbs/in)	7.975	5.303375	7.975	5.303375
Design Bending Moment, M (in-lbs)	13298.56172	8843.543543	13298.56172	8843.543543

NDS CALCULATIONS

CD for LC: D+L	1	1	1	1
CD for LC: D+Lr	1.25	1.25	1.25	1.25
CD for LC: D+S	1.15	1.15	1.15	1.15
CD for LC: D+0.75L+0.75Lr	1.25	1.25	1.25	1.25
CD for LC: D+0.75L+0.75S	1.15	1.15	1.15	1.15
CD for LC: D+0.6W	1.6	1.6	1.6	1.6
CD for LC: D+0.75L+0.42W+0.75Lr	1.6	1.6	1.6	1.6
CD for LC: D+0.75L+0.42W+0.75S	1.6	1.6	1.6	1.6
CM for F _b	1	1	1	1
CM for F _c	1	1	1	1
CM for E, E _{min}	1	1	1	1
C _t for E, E _{min}	1	1	1	1
C _t for F _b , F _c	1	1	1	1
CF for F _b	1.5	1.5	1.3	1.3
CF for F _c	1.15	1.15	1.1	1.1
C _{fu}	1	1	1	1
C _i for E, E _{min}	1	1	1	1
C _i for F _b , F _c	1	1	1	1
C _r	1.5	1.5	1.35	1.35
CT	1	1	1	1
CV	1	1	1	1
C _c	1	1	1	1
CI	1	1	1	1
I _e (in)	118.965	118.965	118.965	118.965
RB	13.60355346	13.60355346	17.05295673	17.05295673
E _{min} ' (psi)	580000	580000	580000	580000
F _{bE} (psi)	3761.010141	3761.010141	2393.37009	2393.37009
F _b * for LC: D+L (psi)	2025	2025	1579.5	1579.5
F _b * for LC: D+Lr (psi)	2531.25	2531.25	1974.375	1974.375
F _b * for LC: D+S (psi)	2328.75	2328.75	1816.425	1816.425
F _b * for LC: D+0.75L+0.75Lr (psi)	2531.25	2531.25	1974.375	1974.375
F _b * for LC: D+0.75L+0.75S (psi)	2328.75	2328.75	1816.425	1816.425
F _b * for LC: D+0.6W (psi)	3240	3240	2527.2	2527.2
F _b * for LC: D+0.75L+0.42W+0.75Lr (psi)	3240	3240	2527.2	2527.2
F _b * for LC: D+0.75L+0.42W+0.75S (psi)	3240	3240	2527.2	2527.2

CL for LC: D+L	0.950227596	0.950227596	0.92696991	0.92696991
CL for LC: D+Lr	0.924014199	0.924014199	0.882129323	0.882129323
CL for LC: D+S	0.935585877	0.935585877	0.902084832	0.902084832
CL for LC: D+0.75L+0.75Lr	0.924014199	0.924014199	0.882129323	0.882129323
CL for LC: D+0.75L+0.75S	0.935585877	0.935585877	0.902084832	0.902084832
CL for LC: D+0.6W	0.869920706	0.869920706	0.794012098	0.794012098
CL for LC: D+0.75L+0.42W+0.75Lr	0.869920706	0.869920706	0.794012098	0.794012098
CL for LC: D+0.75L+0.42W+0.75S	0.869920706	0.869920706	0.794012098	0.794012098
Combined CL & CV for LC: D+L	0.950227596	0.950227596	0.92696991	0.92696991
Combined CL & CV for LC: D+Lr	0.924014199	0.924014199	0.882129323	0.882129323
Combined CL & CV for LC: D+S	0.935585877	0.935585877	0.902084832	0.902084832
Combined CL & CV for LC: D+0.75L+0.75Lr	0.924014199	0.924014199	0.882129323	0.882129323
Combined CL & CV for LC: D+0.75L+0.75S	0.935585877	0.935585877	0.902084832	0.902084832
Combined CL & CV for LC: D+0.6W	0.869920706	0.869920706	0.794012098	0.794012098
Combined CL & CV for LC: D+0.75L+0.42W+	0.869920706	0.869920706	0.794012098	0.794012098
Combined CL & CV for LC: D+0.75L+0.42W+	0.869920706	0.869920706	0.794012098	0.794012098
Controlling le/d	33	33	21	21
FcE (psi)	437.7961433	437.7961433	1081.088435	1081.088435
Fc* for LC: D+L (psi)	1552.5	1552.5	1485	1485
Fc* for LC: D+Lr (psi)	1940.625	1940.625	1856.25	1856.25
Fc* for LC: D+S (psi)	1785.375	1785.375	1707.75	1707.75
Fc* for LC: D+0.75L+0.75Lr (psi)	1940.625	1940.625	1856.25	1856.25
Fc* for LC: D+0.75L+0.75S (psi)	1785.375	1785.375	1707.75	1707.75
Fc* for LC: D+0.6W (psi)	2484	2484	2376	2376
Fc* for LC: D+0.75L+0.42W+0.75Lr (psi)	2484	2484	2376	2376
Fc* for LC: D+0.75L+0.42W+0.75S (psi)	2484	2484	2376	2376
c	0.8	0.8	0.8	0.8
CP for LC: D+L	0.263191623	0.263191623	0.573643433	0.573643433
CP for LC: D+Lr	0.213948839	0.213948839	0.488881917	0.488881917
CP for LC: D+S	0.231293769	0.231293769	0.520228803	0.520228803
CP for LC: D+0.75L+0.75Lr	0.213948839	0.213948839	0.488881917	0.488881917
CP for LC: D+0.75L+0.75S	0.231293769	0.231293769	0.520228803	0.520228803
CP for LC: D+0.6W	0.169341869	0.169341869	0.40123109	0.40123109
CP for LC: D+0.75L+0.42W+0.75Lr	0.169341869	0.169341869	0.40123109	0.40123109
CP for LC: D+0.75L+0.42W+0.75S	0.169341869	0.169341869	0.40123109	0.40123109
Fb' for LC: D+L (psi)	1924.210883	1924.210883	1464.148972	1464.148972
Fb' for LC: D+Lr (psi)	2338.910942	2338.910942	1741.654083	1741.654083
Fb' for LC: D+S (psi)	2178.745612	2178.745612	1638.569442	1638.569442
Fb' for LC: D+0.75L+0.75Lr (psi)	2338.910942	2338.910942	1741.654083	1741.654083
Fb' for LC: D+0.75L+0.75S (psi)	2178.745612	2178.745612	1638.569442	1638.569442
Fb' for LC: D+0.6W (psi)	2818.543086	2818.543086	2006.627374	2006.627374
Fb' for LC: D+0.75L+0.42W+0.75Lr (psi)	2818.543086	2818.543086	2006.627374	2006.627374
Fb' for LC: D+0.75L+0.42W+0.75S (psi)	2818.543086	2818.543086	2006.627374	2006.627374
fb for LC: D+L (psi)	0	0	0	0
fb for LC: D+Lr (psi)	0	0	0	0
fb for LC: D+S (psi)	0	0	0	0
fb for LC: D+0.75L+0.75Lr (psi)	0	0	0	0
fb for LC: D+0.75L+0.75S (psi)	0	0	0	0
fb for LC: D+0.6W (psi)	2605.4325	1732.612613	1055.0925	701.6365125
fb for LC: D+0.75L+0.42W+0.75Lr (psi)	1823.80275	1212.828829	738.56475	491.1455588
fb for LC: D+0.75L+0.42W+0.75S (psi)	1823.80275	1212.828829	738.56475	491.1455588
fb/F'b for LC: D+L	0%	0%	0%	0%
fb/F'b for LC: D+Lr	0%	0%	0%	0%
fb/F'b for LC: D+S	0%	0%	0%	0%
fb/F'b for LC: D+0.75L+0.75Lr	0%	0%	0%	0%
fb/F'b for LC: D+0.75L+0.75S	0%	0%	0%	0%
fb/F'b for LC: D+0.6W	92%	61%	53%	35%
fb/F'b for LC: D+0.75L+0.42W+0.75Lr	65%	43%	37%	24%
fb/F'b for LC: D+0.75L+0.42W+0.75S	65%	43%	37%	24%

Fc' for LC: D+L psi	408.6049952	408.6049952	851.8604984	851.8604984
Fc' for LC: D+Lr psi	415.1944658	415.1944658	907.487059	907.487059
Fc' for LC: D+S psi	412.9461136	412.9461136	888.4207386	888.4207386
Fc' for LC: D+0.75L+0.75Lr psi	415.1944658	415.1944658	907.487059	907.487059
Fc' for LC: D+0.75L+0.75S psi	412.9461136	412.9461136	888.4207386	888.4207386
Fc' for LC: D+0.6W psi	420.6452019	420.6452019	953.3250695	953.3250695
Fc' for LC: D+0.75L+0.42W+0.75Lr psi	420.6452019	420.6452019	953.3250695	953.3250695
Fc' for LC: D+0.75L+0.42W+0.75S psi	420.6452019	420.6452019	953.3250695	953.3250695
fc for LC: D+L (psi)	141.7857143	233.6208333	223.5606061	237.3344697
fc for LC: D+Lr (psi)	294.1666667	233.6208333	223.5606061	172.8496212
fc for LC: D+S (psi)	408.452381	309.6208333	296.2878788	221.2132576
fc for LC: D+0.75L+0.75Lr (psi)	256.0714286	284.2875	272.0454545	253.4556818
fc for LC: D+0.75L+0.75S (psi)	341.7857143	341.2875	326.5909091	289.7284091
fc for LC: D+0.6W (psi)	141.7857143	132.2875	126.5909091	108.3647727
fc for LC: D+0.75L+0.42W+0.75Lr (psi)	256.0714286	284.2875	272.0454545	253.4556818
fc for LC: D+0.75L+0.42W+0.75S (psi)	341.7857143	341.2875	326.5909091	289.7284091
fc/Fc' for LC: D+L	34.7%	57.2%	26.2%	27.9%
fc/Fc' for LC: D+Lr	70.9%	56.3%	24.6%	19.0%
fc/Fc' for LC: D+S	98.9%	75.0%	33.3%	24.9%
fc/Fc' for LC: D+0.75L+0.75Lr	61.7%	68.5%	30.0%	27.9%
fc/Fc' for LC: D+0.75L+0.75S	82.8%	82.6%	36.8%	32.6%
fc/Fc' for LC: D+0.6W	33.7%	31.4%	13.3%	11.4%
fc/Fc' for LC: D+0.75L+0.42W+0.75Lr	60.9%	67.6%	28.5%	26.6%
fc/Fc' for LC: D+0.75L+0.42W+0.75S	81.3%	81.1%	34.3%	30.4%
Combined axial & bending for LC: D+L	12%	33%	7%	8%
Combined axial & bending for LC: D+Lr	50%	32%	6%	4%
Combined axial & bending for LC: D+S	98%	56%	11%	6%
Combined axial & bending for LC: D+0.75L+0	38%	47%	9%	8%
Combined axial & bending for LC: D+0.75L+0	69%	68%	14%	11%
Combined axial & bending for LC: D+0.6W	148%	98%	61%	40%
Combined axial & bending for LC: D+0.75L+0	193%	168%	57%	39%
Combined axial & bending for LC: D+0.75L+0	361%	261%	64%	43%
Flatwise check for LC: D+L	0%	0%	0%	0%
Flatwise check for LC: D+Lr	0%	0%	0%	0%
Flatwise check for LC: D+S	0%	0%	0%	0%
Flatwise check for LC: D+0.75L+0.75Lr	0%	0%	0%	0%
Flatwise check for LC: D+0.75L+0.75S	0%	0%	0%	0%
Flatwise check for LC: D+0.6W	0%	0%	0%	0%
Flatwise check for LC: D+0.75L+0.42W+0.75Lr	0%	0%	0%	0%
Flatwise check for LC: D+0.75L+0.42W+0.75S	0%	0%	0%	0%
Unity for LC: D+L	35%	57%	26%	28%
Unity for LC: D+Lr	71%	56%	25%	19%
Unity for LC: D+S	99%	75%	33%	25%
Unity for LC: D+0.75L+0.75Lr	62%	68%	30%	28%
Unity for LC: D+0.75L+0.75S	83%	83%	37%	33%
Unity for LC: D+0.6W	148%	98%	61%	40%
Unity for LC: D+0.75L+0.42W+0.75Lr	193%	168%	57%	39%
Unity for LC: D+0.75L+0.42W+0.75S	361%	261%	64%	43%
DEFLECTION CALCULATIONS				
E' (psi)	1600000	1600000	1600000	1600000
Deflection (in)	0.905133357	0.601913682	0.23325375	0.155113744
Deflection (L/)	127.605506	191.8879789	495.1688876	744.6148686