MELEIKA & ASSOCIATES CONSULTING ENGINEERS

RMA-74-ADU

951-255-7423
7693 PALMILLA, UNIT 2427
SAN DIEGO, CA 92122

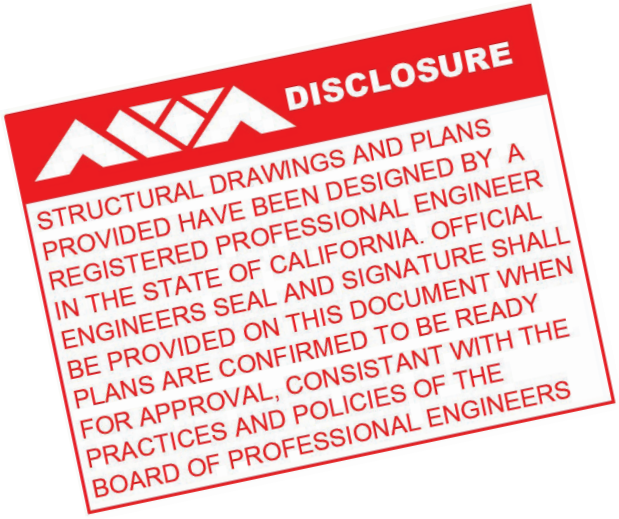
PROPOSED ADDITION & RE-FRAMING

OF EXISTING DWELLING

AT

45750 250th ST

LANCASTER



1ST PLAN CHECK

9/23/2021

8/18/2021 -5:45 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

LOAD TABULATION 1

CEILING

NAME	LOAD	TYPE	UNIFORM DISTRIBUTION 12" O.C.	16" O.C.	24" O.C.
1/2" GYPSUM BOARD	3 PSF	DEAD			
CEILING JOISTS	4 PSF	DEAD			
BATT INSULATION	3 PSF	DEAD			
ATTIC LIVE LOAD	20 PSF	LIVE			
-	PSF	-			
-	PSF	-			
LIVE TOTAL	**20 PSF**		20 #/FT	27 #/FT	40 #/FT
DEAD TOTAL	**10 PSF**		10 #/FT	13 #/FT	20 #/FT
LOAD TOTAL	**30 PSF**		30 #/FT	40 #/FT	60 #/FT

ROOF RAFTERS

NAME	LOAD	TYPE	12" O.C.	16" O.C.	24" O.C.
PLYWOOD SHEATHING	4 PSF	DEAD			
COMP. SHINGLE ROOFING	6 PSF	DEAD			
ROOF LIVE	20 PSF	LIVE			
ROOF RAFTERS	4 PSF	DEAD			
-	PSF	-			
-	PSF	-			
LIVE TOTAL	**20 PSF**		20 #/FT	27 #/FT	40 #/FT
DEAD TOTAL	**14 PSF**		14 #/FT	19 #/FT	28 #/FT
LOAD TOTAL	**34 PSF**		34 #/FT	45 #/FT	68 #/FT

EXTERIOR WALLS

NAME	LOAD	TYPE	12" O.C.	16" O.C.	24" O.C.
STUCCO	9 PSF	DEAD			
2X4 STUDS @ 16" O.C.	2 PSF	DEAD			
PLYWOOD SHEATHING	4 PSF	DEAD			
BATT INSULATION	3 PSF	DEAD			
-	PSF	-			
-	PSF	-			
LIVE TOTAL	**PSF**		#/FT	#/FT	#/FT
DEAD TOTAL	**18 PSF**		18 #/FT	24 #/FT	36 #/FT
LOAD TOTAL	**18 PSF**		18 #/FT	24 #/FT	36 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH
METHODOLOGY AND BASIS OF DESIGN

SUMMARY
THE TABLES PROVIDED SHOW THE MAXIMUM ALLOWED UNIFORMLY DISTRIBUTED LOAD UPON A SIMPLY SUPPORTED BEAM AS A FUNCTION OF LENGTH. SIMPLY SUPPORTED BEAMS WITH UNIFORMLY DISTRIBUTED LOADS ARE A COMMON OCCURANCE IN THE DESIGN OF LIGHT FRAME WOOD BUILDINGS. THESE TABLES ALLOW AN ENGINEER TO ASSESS THE CAPACITY OF A PARTICULAR BEAM CROSS-SECTION BASED ON THE FOLLOWING ASSUMPTIONS:

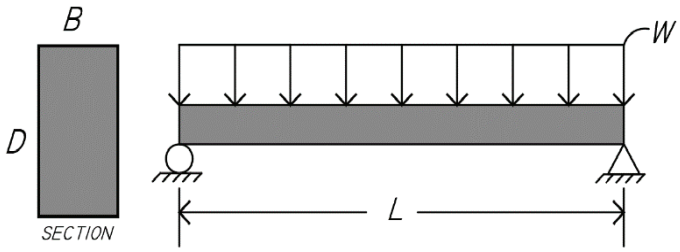
- ONLY LIVE AND DEAD LOADS ARE CONSIDERED, SEISMIC, WIND AND SNOW LOADS UTILIZE LOAD COMBINATIONS NOT A PART OF THIS METHODOLOGY

- LIVE LOAD FACTOR OF 1.25 AND REPITITION FACTOR OF 1.15 ARE **NOT** PART OF THIS METHODOLOGY, MAKING THE VALUES OF THESE TABLES CONSERVATIVE

- BEAM IS LOADED UNIFORMLY FROM THE ENTIRE LENGTH OF THE BEAM

3 MODES OF BEAM FAILURE ARE CONSIDERED FOR EACH BEAM SECTION A EACH GIVEN LENGTH: SHEAR, BENDING, AND DEFLECTION. THE MOST RESTRICTIVE VALUE OF THE THREE IS CHOSEN

SYMBOLS & VALUES



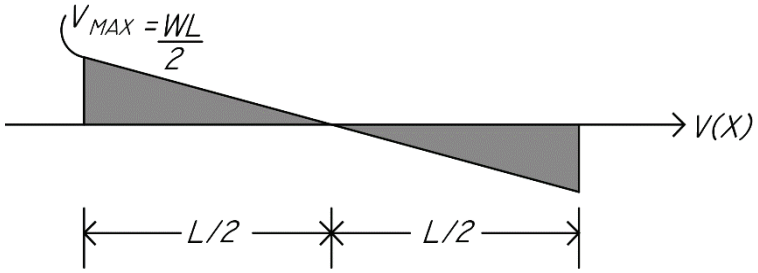
(D1) SIMPLY SUPPORTED BEAM *(D2)*

- B: *NOMINAL BEAM WIDTH (IN)*
- D: *NOMINAL BEAM DEPTH (IN)*
- L: *BEAM LENGTH (FT)*
- E: *MODULUS OF ELASTICITY (PSI)*
- I: *MOMENT OF INERTIA (IN^4)*
- S: *SECTIONAL MODULUS (IN^3)*
- Δ_C: *CENTER DEFLECTION (IN)*
- V: *SHEAR (LBS)*
- M: *BENDING MOMENT (#*FT)*
- W: *UNIFORMLY DISTRIBUTED LOAD (PLF)*
- W_Δ: *UNIFORMLY DISTRIBUTED LOAD BASED ON DEFLECTION (PLF)*
- W_V: *UNIFORMLY DISTRIBUTED LOAD BASED ON SHEAR (PLF)*
- W_B: *UNIFORMLY DISTRIBUTED LOAD BASED ON BENDING (PLF)*
- f_b: *FLEXURAL STRESS (PSI-NDS)*
- f_v: *SHEAR STRESS (PSI-NDS)*
- ϕ: *LOAD CAPCITY REDUCTION FACTOR PER E.O.R*

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

SHEAR

THE MAXIMUM OCCURING SHEAR VALUE FOR A UNIFORMLY LOADED BEAM IS CONSIDERED.



(D3)

SHEAR DIAGRAM

THE MAXIMUM SHEAR LOAD OCCURS AT SUPPORT REACTIONS AS HALF THE ENTIRE LOAD UPON THE BEAM:

$$\frac{WL}{2} = V \qquad \textit{(EQ1)}$$

CONSIDER THE FOLLOWING SHEAR STRESS EQUATION:

$$f_v = \frac{3v}{2BD} \qquad \textit{(EQ2)}$$

COMBINING EQUATIONS 1 & 2:

$$f_v = \frac{3}{2BD} * \frac{WL}{2} \qquad \textit{(EQ3)}$$

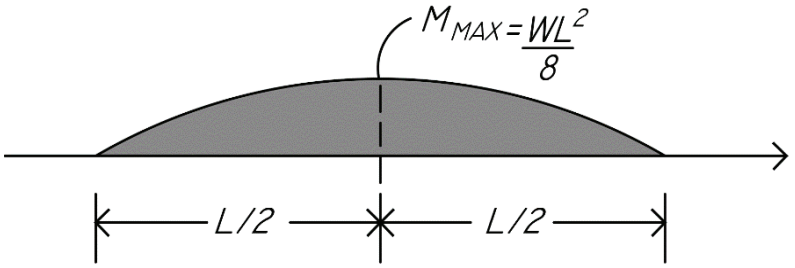
$$\frac{4BD f_v}{3L} = W_V \qquad \textit{(EQ4)}$$

EQUATION 4 YEILDS W_V AS A FUNCTION OF LENGTH, THE DIMENSIONS AND SHEAR STRESS CAPACITY ARE ALSO CONSIDERED IN THIS EQUATION

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

BENDING

THE MAXIMUM OCCURING BENDING MOMENT FOR A UNIFORMLY LOADED BEAM IS CONSIDERED. THIS OCCURS AT THE CENTER OF THE BEAM PER *(D4)*



(D4)

THE MAXIMUM BENDING MOMENT IS AS FOLLOWS:

$$\frac{WL^2}{8} = M \quad \textit{(EQ5)}$$

CONSIDER THE FOLLOWING BENDING STRESS EQUATION:

$$f_B S = M \quad \textit{(EQ6)} \qquad\qquad \frac{BD^2}{6} = S \quad \textit{(EQ7)}$$

CONVERTING *EQ5* TO #*IN, AND COMBINING *EQ 5,6,&7* YEILDS THE FOLLOWING:

$$f_b \; * \; \frac{BD^2}{6} = \frac{12WL^2}{8} \quad \textit{(EQ8)}$$

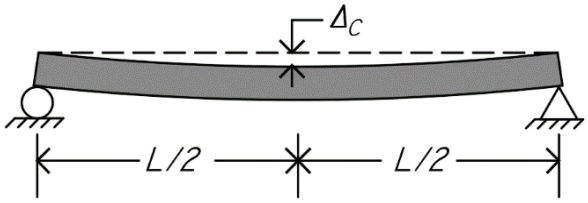
$$\frac{BD^2 f_b}{9L^2} = W_B \quad \textit{(EQ9)}$$

EQUATION 8 YEILDS W_B AS A FUNCTION OF LENGTH, THE DIMENSIONS AND BENDING STRESS CAPACITY ARE ALSO CONSIDERED IN THIS EQUATION

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

DEFLECTION

THE MAXIMUM OCCURING DEFLECTION FOR A UNIFORMLY LOADED BEAM IS CONSIDERED. THIS OCCURS AT THE CENTER OF THE BEAM PER *(D5)*



(D5)

Δ_C IS TAKEN AS A FRACTION OF THE LENGTH "L" OF THE BEAM. AS A CONVERVATIVE MEASURE L/360

(EQ10)

$$\frac{5*(W/12)*(12L)^4}{384EI} = \Delta_C$$

(EQ11)

$$\frac{BD^3}{12} = I$$

(EQ12)

$$\Delta_C = \frac{12L}{360}$$

* FORMULAS SHOWN INCLUDE A CONVERSION FACTOR FROM FEET TO INCHES

COMBINATION OF EQUATIONS 10, 11, AND 12 YEILDS THE FOLLOWING:

$$\frac{EBD^3}{8100L^3} = W_{\Delta} \qquad \textit{(EQ12)}$$

COMPARISON OF VALUES

SHEAR, BENDING MOMENT, AND DEFLECTION MODES OF ALLOWABLE "W" ARE COMPARED. THE MOST RESTRICTIVE CASE IS UTILIZED

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

2X6 #2

B: 1.5 D: 5.5 fb: 810 S: 7.56 I: 20.8 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	356.4	163.4	354.9	163 #/FT
5.5	324.0	135.0	266.7	135 #/FT
6	297.0	113.4	205.4	113 #/FT
6.5	274.2	96.7	161.6	97 #/FT
7	254.6	83.3	129.3	83 #/FT
7.5	237.6	72.6	105.2	73 #/FT
8	222.8	63.8	86.7	64 #/FT
8.5	209.6	56.5	72.2	57 #/FT
9	198.0	50.4	60.9	50 #/FT
9.5	187.6	45.2	51.7	45 #/FT
10	178.2	40.8	44.4	41 #/FT
10.5	169.7	37.0	38.3	37 #/FT
11	162.0	33.8	33.3	33 #/FT
11.5	155.0	30.9	29.2	29 #/FT
12	148.5	28.4	25.7	26 #/FT
12.5	142.6	26.1	22.7	23 #/FT
13	137.1	24.2	20.2	20 #/FT
13.5	132.0	22.4	18.0	18 #/FT
14	127.3	20.8	16.2	16 #/FT
14.5	122.9	19.4	14.6	15 #/FT
15	118.8	18.2	13.1	13 #/FT
15.5	115.0	17.0	11.9	12 #/FT
16	111.4	16.0	10.8	11 #/FT
16.5	108.0	15.0	9.9	10 #/FT
17	104.8	14.1	9.0	9 #/FT
17.5	101.8	13.3	8.3	8 #/FT
18	99.0	12.6	7.6	8 #/FT
18.5	96.3	11.9	7.0	7 #/FT
19	93.8	11.3	6.5	6 #/FT
19.5	91.4	10.7	6.0	6 #/FT
20	89.1	10.2	5.5	6 #/FT
20.5	86.9	9.7	5.1	5 #/FT
21	84.9	9.3	4.8	5 #/FT
21.5	82.9	8.8	4.5	4 #/FT
22	81.0	8.4	4.2	4 #/FT
22.5	79.2	8.1	3.9	4 #/FT
23	77.5	7.7	3.6	4 #/FT
23.5	75.8	7.4	3.4	3 #/FT
24	74.3	7.1	3.2	3 #/FT
24.5	72.7	6.8	3.0	3 #/FT
25	71.3	6.5	2.8	3 #/FT
25.5	69.9	6.3	2.7	3 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

2X8 #2

B: 1.5 D: 7.25 fb: 810 S: 13.14 I: 47.63 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	469.8	283.8	813.0	284 #/FT
5.5	427.1	234.6	610.8	235 #/FT
6	391.5	197.1	470.5	197 #/FT
6.5	361.4	168.0	370.0	168 #/FT
7	335.6	144.8	296.3	145 #/FT
7.5	313.2	126.2	240.9	126 #/FT
8	293.6	110.9	198.5	111 #/FT
8.5	276.4	98.2	165.5	98 #/FT
9	261.0	87.6	139.4	88 #/FT
9.5	247.3	78.6	118.5	79 #/FT
10	234.9	71.0	101.6	71 #/FT
10.5	223.7	64.4	87.8	64 #/FT
11	213.5	58.6	76.3	59 #/FT
11.5	204.3	53.7	66.8	54 #/FT
12	195.8	49.3	58.8	49 #/FT
12.5	187.9	45.4	52.0	45 #/FT
13	180.7	42.0	46.3	42 #/FT
13.5	174.0	38.9	41.3	39 #/FT
14	167.8	36.2	37.0	36 #/FT
14.5	162.0	33.8	33.3	33 #/FT
15	156.6	31.5	30.1	30 #/FT
15.5	151.5	29.5	27.3	27 #/FT
16	146.8	27.7	24.8	25 #/FT
16.5	142.4	26.1	22.6	23 #/FT
17	138.2	24.6	20.7	21 #/FT
17.5	134.2	23.2	19.0	19 #/FT
18	130.5	21.9	17.4	17 #/FT
18.5	127.0	20.7	16.0	16 #/FT
19	123.6	19.7	14.8	15 #/FT
19.5	120.5	18.7	13.7	14 #/FT
20	117.5	17.7	12.7	13 #/FT
20.5	114.6	16.9	11.8	12 #/FT
21	111.9	16.1	11.0	11 #/FT
21.5	109.3	15.4	10.2	10 #/FT
22	106.8	14.7	9.5	10 #/FT
22.5	104.4	14.0	8.9	9 #/FT
23	102.1	13.4	8.4	8 #/FT
23.5	100.0	12.8	7.8	8 #/FT
24	97.9	12.3	7.4	7 #/FT
24.5	95.9	11.8	6.9	7 #/FT
25	94.0	11.4	6.5	7 #/FT
25.5	92.1	10.9	6.1	6 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

2X10 #2

B: 1.5 D: 9.25 fb: 810 S: 21.39 I: 98.93 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	599.4	462.0	1688.4	462 #/FT
5.5	544.9	381.8	1268.5	382 #/FT
6	499.5	320.9	977.1	321 #/FT
6.5	461.1	273.4	768.5	273 #/FT
7	428.1	235.7	615.3	236 #/FT
7.5	399.6	205.4	500.3	205 #/FT
8	374.6	180.5	412.2	180 #/FT
8.5	352.6	159.9	343.7	160 #/FT
9	333.0	142.6	289.5	143 #/FT
9.5	315.5	128.0	246.2	128 #/FT
10	299.7	115.5	211.1	116 #/FT
10.5	285.4	104.8	182.3	105 #/FT
11	272.5	95.5	158.6	95 #/FT
11.5	260.6	87.3	138.8	87 #/FT
12	249.8	80.2	122.1	80 #/FT
12.5	239.8	73.9	108.1	74 #/FT
13	230.5	68.3	96.1	68 #/FT
13.5	222.0	63.4	85.8	63 #/FT
14	214.1	58.9	76.9	59 #/FT
14.5	206.7	54.9	69.2	55 #/FT
15	199.8	51.3	62.5	51 #/FT
15.5	193.4	48.1	56.7	48 #/FT
16	187.3	45.1	51.5	45 #/FT
16.5	181.6	42.4	47.0	42 #/FT
17	176.3	40.0	43.0	40 #/FT
17.5	171.3	37.7	39.4	38 #/FT
18	166.5	35.7	36.2	36 #/FT
18.5	162.0	33.8	33.3	33 #/FT
19	157.7	32.0	30.8	31 #/FT
19.5	153.7	30.4	28.5	28 #/FT
20	149.9	28.9	26.4	26 #/FT
20.5	146.2	27.5	24.5	24 #/FT
21	142.7	26.2	22.8	23 #/FT
21.5	139.4	25.0	21.2	21 #/FT
22	136.2	23.9	19.8	20 #/FT
22.5	133.2	22.8	18.5	19 #/FT
23	130.3	21.8	17.3	17 #/FT
23.5	127.5	20.9	16.3	16 #/FT
24	124.9	20.1	15.3	15 #/FT
24.5	122.3	19.2	14.4	14 #/FT
25	119.9	18.5	13.5	14 #/FT
25.5	117.5	17.8	12.7	13 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

2X12 #2

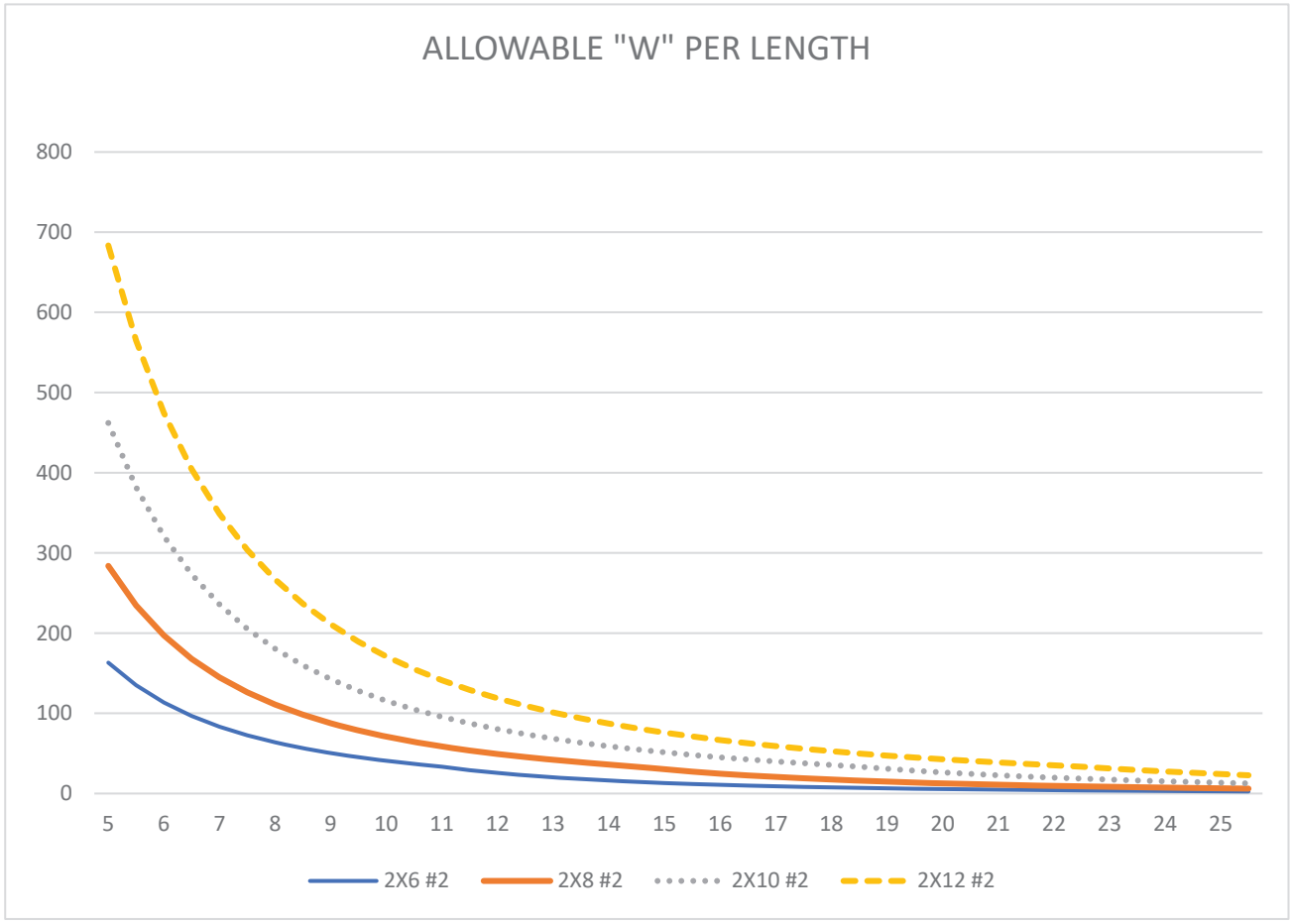
B: 1.5 D: 11.25 fb: 810 S: 31.64 I: 177.98 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	729.0	683.4	3037.5	683 #/FT
5.5	662.7	564.8	2282.1	565 #/FT
6	607.5	474.6	1757.8	475 #/FT
6.5	560.8	404.4	1382.6	404 #/FT
7	520.7	348.7	1107.0	349 #/FT
7.5	486.0	303.8	900.0	304 #/FT
8	455.6	267.0	741.6	267 #/FT
8.5	428.8	236.5	618.3	236 #/FT
9	405.0	210.9	520.8	211 #/FT
9.5	383.7	189.3	442.8	189 #/FT
10	364.5	170.9	379.7	171 #/FT
10.5	347.1	155.0	328.0	155 #/FT
11	331.4	141.2	285.3	141 #/FT
11.5	317.0	129.2	249.7	129 #/FT
12	303.8	118.7	219.7	119 #/FT
12.5	291.6	109.4	194.4	109 #/FT
13	280.4	101.1	172.8	101 #/FT
13.5	270.0	93.8	154.3	94 #/FT
14	260.4	87.2	138.4	87 #/FT
14.5	251.4	81.3	124.5	81 #/FT
15	243.0	75.9	112.5	76 #/FT
15.5	235.2	71.1	102.0	71 #/FT
16	227.8	66.7	92.7	67 #/FT
16.5	220.9	62.8	84.5	63 #/FT
17	214.4	59.1	77.3	59 #/FT
17.5	208.3	55.8	70.8	56 #/FT
18	202.5	52.7	65.1	53 #/FT
18.5	197.0	49.9	60.0	50 #/FT
19	191.8	47.3	55.4	47 #/FT
19.5	186.9	44.9	51.2	45 #/FT
20	182.3	42.7	47.5	43 #/FT
20.5	177.8	40.7	44.1	41 #/FT
21	173.6	38.7	41.0	39 #/FT
21.5	169.5	37.0	38.2	37 #/FT
22	165.7	35.3	35.7	35 #/FT
22.5	162.0	33.8	33.3	33 #/FT
23	158.5	32.3	31.2	31 #/FT
23.5	155.1	30.9	29.3	29 #/FT
24	151.9	29.7	27.5	27 #/FT
24.5	148.8	28.5	25.8	26 #/FT
25	145.8	27.3	24.3	24 #/FT
25.5	142.9	26.3	22.9	23 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS PER LENGTH FOR:
DF#2 RAFTERS AND JOISTS

LENGTH	ALLOWABLE "W" (PLF)							
(FT)	2X6 #2	RXN(#)	2X8 #2	RXN(#)	2X10 #2	RXN(#)	2X12 #2	RXN(#)
5	163	408#	284	710#	462	1155#	683	1709#
5.5	135	371#	235	645#	382	1050#	565	1553#
6	113	340#	197	591#	321	963#	475	1424#
6.5	97	314#	168	546#	273	889#	404	1314#
7	83	292#	145	507#	236	825#	349	1220#
7.5	73	272#	126	473#	205	770#	304	1139#
8	64	255#	111	443#	180	722#	267	1068#
8.5	57	240#	98	417#	160	679#	236	1005#
9	50	227#	88	394#	143	642#	211	949#
9.5	45	215#	79	373#	128	608#	189	899#
10	41	204#	71	355#	116	578#	171	854#
10.5	37	194#	64	338#	105	550#	155	814#
11	33	183#	59	323#	95	525#	141	777#
11.5	29	168#	54	309#	87	502#	129	743#
12	26	154#	49	296#	80	481#	119	712#
12.5	23	142#	45	284#	74	462#	109	683#
13	20	131#	42	273#	68	444#	101	657#
13.5	18	122#	39	263#	63	428#	94	633#
14	16	113#	36	253#	59	413#	87	610#
14.5	15	106#	33	242#	55	398#	81	589#
15	13	99#	30	226#	51	385#	76	570#
15.5	12	92#	27	211#	48	373#	71	551#
16	11	87#	25	198#	45	361#	67	534#
16.5	10	81#	23	187#	42	350#	63	518#
17	9	77#	21	176#	40	340#	59	503#
17.5	8	72#	19	166#	38	330#	56	488#
18	8	68#	17	157#	36	321#	53	475#
18.5	7	65#	16	148#	33	308#	50	462#
19	6	61#	15	141#	31	292#	47	450#
19.5	6	58#	14	134#	28	278#	45	438#
20	6	55#	13	127#	26	264#	43	427#
20.5	5	53#	12	121#	24	251#	41	417#
21	5	50#	11	115#	23	239#	39	407#
21.5	4	48#	10	110#	21	228#	37	397#
22	4	46#	10	105#	20	218#	35	388#
22.5	4	44#	9	100#	19	208#	33	375#
23	4	42#	8	96#	17	199#	31	359#
23.5	3	40#	8	92#	16	191#	29	344#
24	3	39#	7	88#	15	183#	27	330#
24.5	3	37#	7	85#	14	176#	26	316#
25	3	35#	7	81#	14	169#	24	304#
25.5	3	34#	6	78#	13	162#	23	292#

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS PER LENGTH FOR:
DF#2 RAFTERS AND JOISTS



ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

4X6 #1

B: 3.5 D: 5.5 fb: 1080 S: 17.65 I: 48.53 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	831.6	508.2	828.2	508 #/FT
5.5	756.0	420.0	622.2	420 #/FT
6	693.0	352.9	479.3	353 #/FT
6.5	639.7	300.7	377.0	301 #/FT
7	594.0	259.3	301.8	259 #/FT
7.5	554.4	225.9	245.4	226 #/FT
8	519.8	198.5	202.2	199 #/FT
8.5	489.2	175.8	168.6	169 #/FT
9	462.0	156.9	142.0	142 #/FT
9.5	437.7	140.8	120.7	121 #/FT
10	415.8	127.1	103.5	104 #/FT
10.5	396.0	115.2	89.4	89 #/FT
11	378.0	105.0	77.8	78 #/FT
11.5	361.6	96.1	68.1	68 #/FT
12	346.5	88.2	59.9	60 #/FT
12.5	332.6	81.3	53.0	53 #/FT
13	319.8	75.2	47.1	47 #/FT
13.5	308.0	69.7	42.1	42 #/FT
14	297.0	64.8	37.7	38 #/FT
14.5	286.8	60.4	34.0	34 #/FT
15	277.2	56.5	30.7	31 #/FT
15.5	268.3	52.9	27.8	28 #/FT
16	259.9	49.6	25.3	25 #/FT
16.5	252.0	46.7	23.0	23 #/FT
17	244.6	44.0	21.1	21 #/FT
17.5	237.6	41.5	19.3	19 #/FT
18	231.0	39.2	17.8	18 #/FT
18.5	224.8	37.1	16.4	16 #/FT
19	218.8	35.2	15.1	15 #/FT
19.5	213.2	33.4	14.0	14 #/FT
20	207.9	31.8	12.9	13 #/FT
20.5	202.8	30.2	12.0	12 #/FT
21	198.0	28.8	11.2	11 #/FT
21.5	193.4	27.5	10.4	10 #/FT
22	189.0	26.3	9.7	10 #/FT
22.5	184.8	25.1	9.1	9 #/FT
23	180.8	24.0	8.5	9 #/FT
23.5	176.9	23.0	8.0	8 #/FT
24	173.3	22.1	7.5	7 #/FT
24.5	169.7	21.2	7.0	7 #/FT
25	166.3	20.3	6.6	7 #/FT
25.5	163.1	19.5	6.2	6 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

4X8 #1

B: 3.5 D: 7.25 fb: 1080 S: 30.66 I: 111.15 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	1096.2	883.1	1896.9	883 #/FT
5.5	996.5	729.8	1425.2	730 #/FT
6	913.5	613.2	1097.8	613 #/FT
6.5	843.2	522.5	863.4	523 #/FT
7	783.0	450.5	691.3	451 #/FT
7.5	730.8	392.5	562.1	392 #/FT
8	685.1	344.9	463.1	345 #/FT
8.5	644.8	305.6	386.1	306 #/FT
9	609.0	272.5	325.3	273 #/FT
9.5	576.9	244.6	276.6	245 #/FT
10	548.1	220.8	237.1	221 #/FT
10.5	522.0	200.2	204.8	200 #/FT
11	498.3	182.4	178.1	178 #/FT
11.5	476.6	166.9	155.9	156 #/FT
12	456.8	153.3	137.2	137 #/FT
12.5	438.5	141.3	121.4	121 #/FT
13	421.6	130.6	107.9	108 #/FT
13.5	406.0	121.1	96.4	96 #/FT
14	391.5	112.6	86.4	86 #/FT
14.5	378.0	105.0	77.8	78 #/FT
15	365.4	98.1	70.3	70 #/FT
15.5	353.6	91.9	63.7	64 #/FT
16	342.6	86.2	57.9	58 #/FT
16.5	332.2	81.1	52.8	53 #/FT
17	322.4	76.4	48.3	48 #/FT
17.5	313.2	72.1	44.2	44 #/FT
18	304.5	68.1	40.7	41 #/FT
18.5	296.3	64.5	37.4	37 #/FT
19	288.5	61.2	34.6	35 #/FT
19.5	281.1	58.1	32.0	32 #/FT
20	274.1	55.2	29.6	30 #/FT
20.5	267.4	52.5	27.5	28 #/FT
21	261.0	50.1	25.6	26 #/FT
21.5	254.9	47.8	23.9	24 #/FT
22	249.1	45.6	22.3	22 #/FT
22.5	243.6	43.6	20.8	21 #/FT
23	238.3	41.7	19.5	19 #/FT
23.5	233.2	40.0	18.3	18 #/FT
24	228.4	38.3	17.2	17 #/FT
24.5	223.7	36.8	16.1	16 #/FT
25	219.2	35.3	15.2	15 #/FT
25.5	214.9	34.0	14.3	14 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

4X10 #1

B: 3.5 D: 9.25 fb: 1080 S: 49.91 I: 230.84 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	1398.6	1437.5	3939.7	1399 #/FT
5.5	1271.5	1188.0	2959.9	1188 #/FT
6	1165.5	998.2	2279.9	998 #/FT
6.5	1075.8	850.6	1793.2	851 #/FT
7	999.0	733.4	1435.7	733 #/FT
7.5	932.4	638.9	1167.3	639 #/FT
8	874.1	561.5	961.8	562 #/FT
8.5	822.7	497.4	801.9	497 #/FT
9	777.0	443.7	675.5	444 #/FT
9.5	736.1	398.2	574.4	398 #/FT
10	699.3	359.4	492.5	359 #/FT
10.5	666.0	326.0	425.4	326 #/FT
11	635.7	297.0	370.0	297 #/FT
11.5	608.1	271.7	323.8	272 #/FT
12	582.8	249.6	285.0	250 #/FT
12.5	559.4	230.0	252.1	230 #/FT
13	537.9	212.6	224.2	213 #/FT
13.5	518.0	197.2	200.2	197 #/FT
14	499.5	183.3	179.5	179 #/FT
14.5	482.3	170.9	161.5	162 #/FT
15	466.2	159.7	145.9	146 #/FT
15.5	451.2	149.6	132.2	132 #/FT
16	437.1	140.4	120.2	120 #/FT
16.5	423.8	132.0	109.6	110 #/FT
17	411.4	124.3	100.2	100 #/FT
17.5	399.6	117.3	91.9	92 #/FT
18	388.5	110.9	84.4	84 #/FT
18.5	378.0	105.0	77.8	78 #/FT
19	368.1	99.5	71.8	72 #/FT
19.5	358.6	94.5	66.4	66 #/FT
20	349.7	89.8	61.6	62 #/FT
20.5	341.1	85.5	57.2	57 #/FT
21	333.0	81.5	53.2	53 #/FT
21.5	325.3	77.7	49.6	50 #/FT
22	317.9	74.2	46.2	46 #/FT
22.5	310.8	71.0	43.2	43 #/FT
23	304.0	67.9	40.5	40 #/FT
23.5	297.6	65.1	37.9	38 #/FT
24	291.4	62.4	35.6	36 #/FT
24.5	285.4	59.9	33.5	33 #/FT
25	279.7	57.5	31.5	32 #/FT
25.5	274.2	55.3	29.7	30 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS
AS A FUNCTION OF LENGTH

4X12 #1

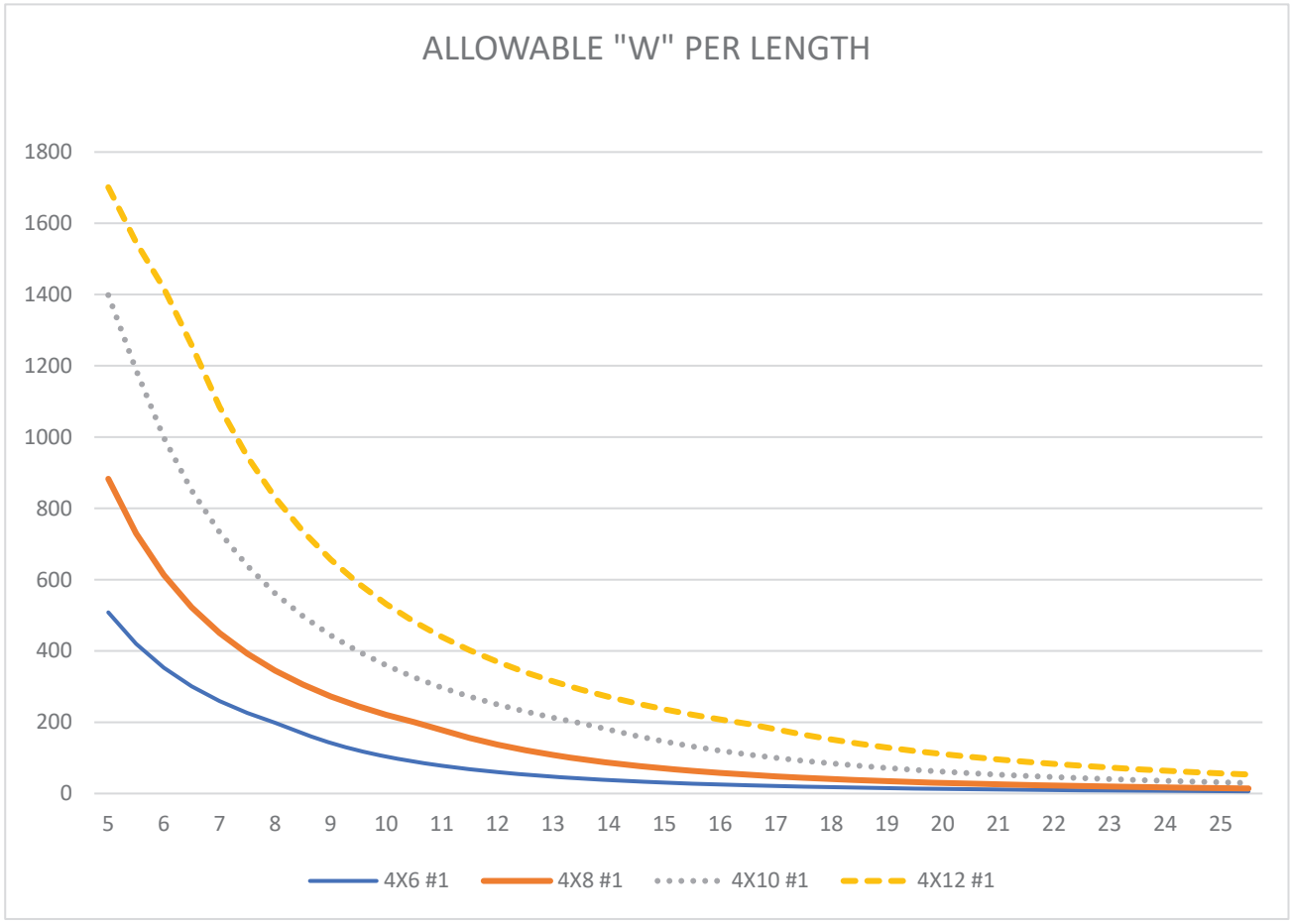
B: 3.5 D: 11.25 fb: 1080 S: 73.83 I: 415.28 fv: 162
E: 1440000 ϕ: 0.9

LENGTH	SHEAR	BENDING	DEFLECTION	MAX. ALLOWABLE
5	1701.0	2126.3	7087.5	1701 #/FT
5.5	1546.4	1757.2	5324.9	1546 #/FT
6	1417.5	1476.6	4101.6	1418 #/FT
6.5	1308.5	1258.1	3226.0	1258 #/FT
7	1215.0	1084.8	2582.9	1085 #/FT
7.5	1134.0	945.0	2100.0	945 #/FT
8	1063.1	830.6	1730.3	831 #/FT
8.5	1000.6	735.7	1442.6	736 #/FT
9	945.0	656.3	1215.3	656 #/FT
9.5	895.3	589.0	1033.3	589 #/FT
10	850.5	531.6	885.9	532 #/FT
10.5	810.0	482.1	765.3	482 #/FT
11	773.2	439.3	665.6	439 #/FT
11.5	739.6	401.9	582.5	402 #/FT
12	708.8	369.1	512.7	369 #/FT
12.5	680.4	340.2	453.6	340 #/FT
13	654.2	314.5	403.2	315 #/FT
13.5	630.0	291.7	360.1	292 #/FT
14	607.5	271.2	322.9	271 #/FT
14.5	586.6	252.8	290.6	253 #/FT
15	567.0	236.3	262.5	236 #/FT
15.5	548.7	221.3	237.9	221 #/FT
16	531.6	207.6	216.3	208 #/FT
16.5	515.5	195.2	197.2	195 #/FT
17	500.3	183.9	180.3	180 #/FT
17.5	486.0	173.6	165.3	165 #/FT
18	472.5	164.1	151.9	152 #/FT
18.5	459.7	155.3	139.9	140 #/FT
19	447.6	147.2	129.2	129 #/FT
19.5	436.2	139.8	119.5	119 #/FT
20	425.3	132.9	110.7	111 #/FT
20.5	414.9	126.5	102.8	103 #/FT
21	405.0	120.5	95.7	96 #/FT
21.5	395.6	115.0	89.1	89 #/FT
22	386.6	109.8	83.2	83 #/FT
22.5	378.0	105.0	77.8	78 #/FT
23	369.8	100.5	72.8	73 #/FT
23.5	361.9	96.3	68.3	68 #/FT
24	354.4	92.3	64.1	64 #/FT
24.5	347.1	88.6	60.2	60 #/FT
25	340.2	85.1	56.7	57 #/FT
25.5	333.5	81.7	53.4	53 #/FT

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS PER LENGTH FOR:
DF#1 BEAMS

LENGTH	ALLOWABLE "W" (PLF)							
(FT)	4X6 #1	RXN(#)	4X8 #1	RXN(#)	4X10 #1	RXN(#)	4X12 #1	RXN(#)
5	508	1271#	883	2208#	1399	3497#	1701	4253#
5.5	420	1155#	730	2007#	1188	3267#	1546	4253#
6	353	1059#	613	1840#	998	2995#	1418	4253#
6.5	301	977#	523	1698#	851	2764#	1258	4089#
7	259	908#	451	1577#	733	2567#	1085	3797#
7.5	226	847#	392	1472#	639	2396#	945	3544#
8	199	794#	345	1380#	562	2246#	831	3322#
8.5	169	716#	306	1299#	497	2114#	736	3127#
9	142	639#	273	1226#	444	1996#	656	2953#
9.5	121	574#	245	1162#	398	1891#	589	2798#
10	104	518#	221	1104#	359	1797#	532	2658#
10.5	89	469#	200	1051#	326	1711#	482	2531#
11	78	428#	178	980#	297	1633#	439	2416#
11.5	68	391#	156	896#	272	1562#	402	2311#
12	60	359#	137	823#	250	1497#	369	2215#
12.5	53	331#	121	759#	230	1437#	340	2126#
13	47	306#	108	702#	213	1382#	315	2044#
13.5	42	284#	96	651#	197	1331#	292	1969#
14	38	264#	86	605#	179	1256#	271	1898#
14.5	34	246#	78	564#	162	1171#	253	1833#
15	31	230#	70	527#	146	1094#	236	1772#
15.5	28	215#	64	493#	132	1025#	221	1715#
16	25	202#	58	463#	120	962#	208	1661#
16.5	23	190#	53	435#	110	904#	195	1611#
17	21	179#	48	410#	100	852#	180	1533#
17.5	19	169#	44	387#	92	804#	165	1446#
18	18	160#	41	366#	84	760#	152	1367#
18.5	16	151#	37	346#	78	719#	140	1294#
19	15	143#	35	328#	72	682#	129	1227#
19.5	14	136#	32	312#	66	648#	119	1165#
20	13	129#	30	296#	62	616#	111	1107#
20.5	12	123#	28	282#	57	586#	103	1054#
21	11	117#	26	269#	53	558#	96	1004#
21.5	10	112#	24	256#	50	533#	89	958#
22	10	107#	22	245#	46	509#	83	915#
22.5	9	102#	21	234#	43	486#	78	875#
23	9	98#	19	224#	40	465#	73	837#
23.5	8	94#	18	215#	38	446#	68	802#
24	7	90#	17	206#	36	427#	64	769#
24.5	7	86#	16	198#	33	410#	60	738#
25	7	83#	15	190#	32	394#	57	709#
25.5	6	80#	14	182#	30	379#	53	681#

ALLOWABLE UNIFORMLY DISTRIBUTED LOADS PER LENGTH FOR:
DF#1 BEAMS



Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 19 AUG 2021, 7:08AM
File: RMA-74-ADU.ec6

Wood Beam

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: BEAM 4: RIDGE BEAM

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

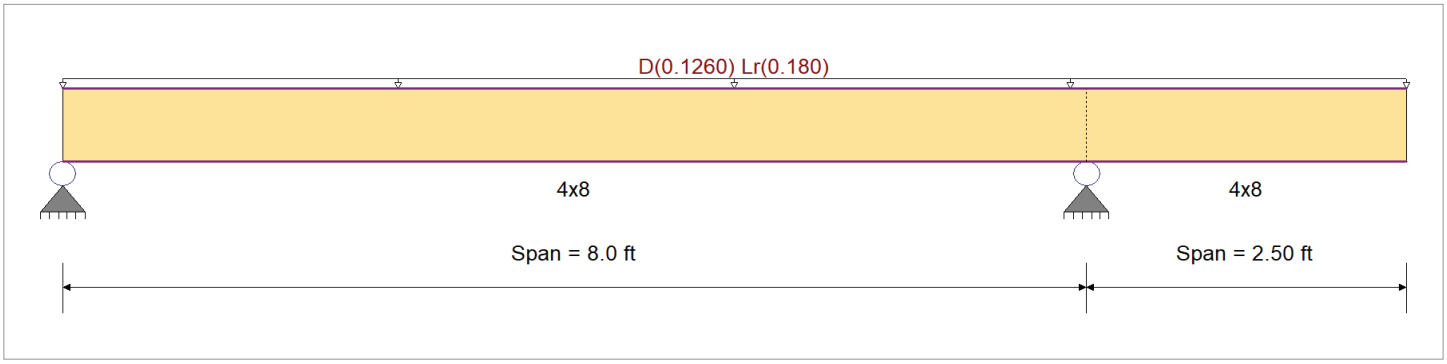
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,350.0 psi
Fb -	1,350.0 psi
Fc - Prll	925.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	675.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0140, Lr = 0.020 ksf, Tributary Width = 9.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.409 : 1	Maximum Shear Stress Ratio	=	0.330 : 1
Section used for this span		4x8	Section used for this span		4x8
fb: Actual	=	896.53 psi	fv: Actual	=	70.15 psi
Fb: Allowable	=	2,193.75 psi	Fv: Allowable	=	212.50 psi
Load Combination		+D+Lr+H, LL Comb Run (L*)	Load Combination		+D+Lr+H, LL Comb Run (LL)
Location of maximum on span	=	3.844 ft	Location of maximum on span	=	7.419 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.094 in	Ratio =	1019 >=360
Max Upward Transient Deflection	-0.093 in	Ratio =	642 >=360
Max Downward Total Deflection	0.147 in	Ratio =	653 >=360
Max Upward Total Deflection	-0.129 in	Ratio =	466 >=360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr+H, LL Comb Run (L*)	1	0.1468	3.978		0.0000	0.000
	2	0.0000	3.978	+D+Lr+H, LL Comb Run (L*)	-0.1286	2.500

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	1.195	2.146	
Overall MINimum	0.650	1.240	
+D+H	0.475	0.906	
+D+L+H, LL Comb Run (*L)	0.475	0.906	
+D+L+H, LL Comb Run (L*)	0.475	0.906	
+D+L+H, LL Comb Run (LL)	0.475	0.906	
+D+Lr+H, LL Comb Run (*L)	0.404	1.426	
+D+Lr+H, LL Comb Run (L*)	1.195	1.626	

Wood Beam

DESCRIPTION: BEAM 4: RIDGE BEAM

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+Lr+H, LL Comb Run (LL)	1.124	2.146	
+D+S+H	0.475	0.906	
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.422	1.296	
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.015	1.446	
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.962	1.836	
+D+0.750L+0.750S+H, LL Comb Run (*L	0.475	0.906	
+D+0.750L+0.750S+H, LL Comb Run (L*	0.475	0.906	
+D+0.750L+0.750S+H, LL Comb Run (LL	0.475	0.906	
+D+0.60W+H	0.475	0.906	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.422	1.296	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.015	1.446	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.962	1.836	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.475	0.906	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.475	0.906	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.475	0.906	
+0.60D+0.60W+0.60H	0.285	0.544	
+D+0.70E+0.60H	0.475	0.906	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.475	0.906	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.475	0.906	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.475	0.906	
+0.60D+0.70E+H	0.285	0.544	
D Only	0.475	0.906	
Lr Only, LL Comb Run (*L)	-0.070	0.520	
Lr Only, LL Comb Run (L*)	0.720	0.720	
Lr Only, LL Comb Run (LL)	0.650	1.240	
H Only			

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 19 AUG 2021, 12:18AM
File: RMA-74-ADU.ec6

Wood Beam

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: BEAM 1: CEILING BEAM

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

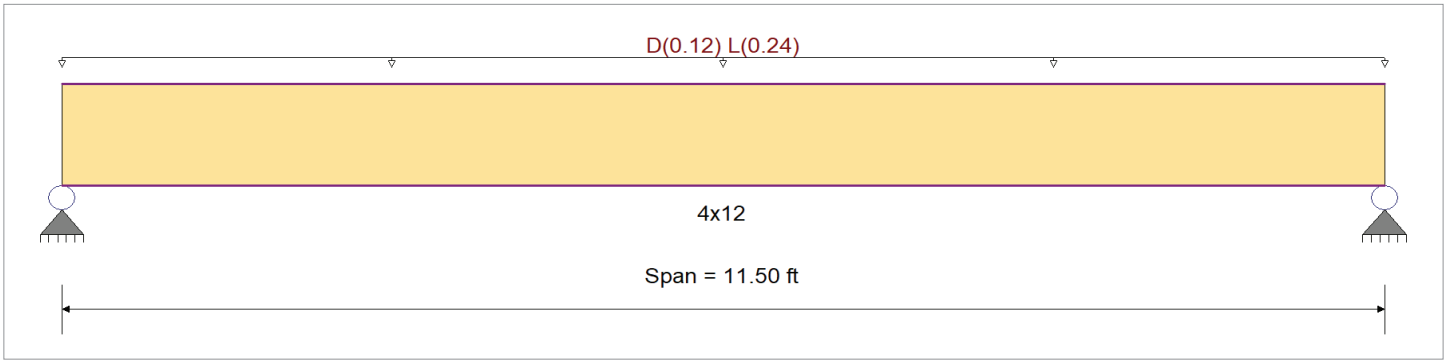
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.010, L = 0.020 ksf, Tributary Width = 12.0 ft, (CLG. LIVE & DEAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	**0.667** : 1	Maximum Shear Stress Ratio	=	**0.399** : 1
Section used for this span		**4x12**	Section used for this span		**4x12**
fb: Actual	=	990.24 psi	fv: Actual	=	67.76 psi
Fb: Allowable	=	1,485.00 psi	Fv: Allowable	=	170.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	5.750 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.143 in	Ratio =	965 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.220 in	Ratio =	628 >=360
Max Upward Total Deflection	0.000 in	Ratio =	0 <360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.2195	5.792		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.119	2.119
Overall MINimum	1.380	1.380
D Only	0.739	0.739
+D+L	2.119	2.119
+D+0.750L	1.774	1.774
+0.60D	0.443	0.443
L Only	1.380	1.380

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 19 AUG 2021, 12:22AM
File: RMA-74-ADU.ec6

Wood Beam

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: BEAM 2: CEILING BEAM

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

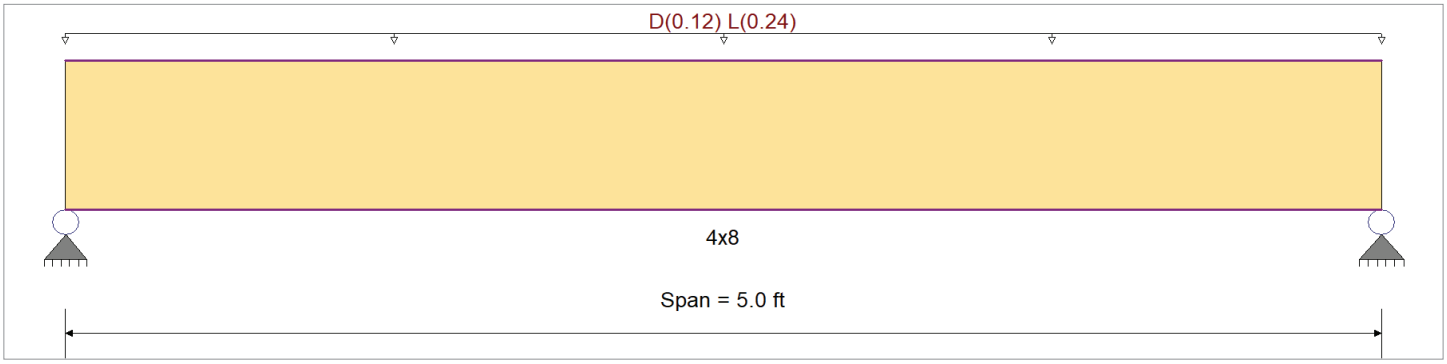
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Fb +	1,350.0 psi
Fb -	1,350.0 psi
Fc - Prll	925.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	675.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.010, L = 0.020 ksf, Tributary Width = 12.0 ft, (CLG. LIVE & DEAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.255 : 1	Maximum Shear Stress Ratio	=	0.241 : 1
Section used for this span		4x8	Section used for this span		4x8
fb: Actual	=	447.02 psi	fv: Actual	=	41.00 psi
Fb: Allowable	=	1,755.00 psi	Fv: Allowable	=	170.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	2.500 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.019 in	Ratio =	3143 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.029 in	Ratio =	2063 >=360
Max Upward Total Deflection	0.000 in	Ratio =	0 <360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0291	2.518		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.914	0.914
Overall MINimum	0.600	0.600
D Only	0.314	0.314
+D+L	0.914	0.914
+D+0.750L	0.764	0.764
+0.60D	0.188	0.188
L Only	0.600	0.600

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 19 AUG 2021, 6:14AM
File: RMA-74-ADU.ec6

Wood Beam

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: BEAM-3: CEILING BEAM

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

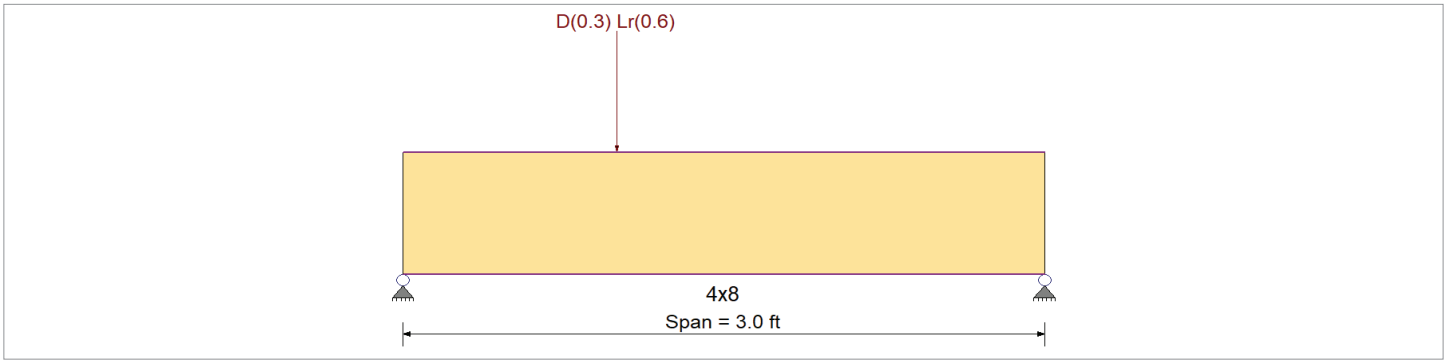
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Point Load : D = 0.30, Lr = 0.60 k @ 1.0 ft, (CEILING LIVE & DEAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	**0.107** : 1	Maximum Shear Stress Ratio	=	**0.167** : 1
Section used for this span		**4x8**	Section used for this span		**4x8**
fb: Actual	=	233.97 psi	fv: Actual	=	35.47 psi
Fb: Allowable	=	2,193.75 psi	Fv: Allowable	=	212.50 psi
Load Combination		+D+Lr	Load Combination		+D+Lr
Location of maximum on span	=	0.996 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.003 in	Ratio =	12682 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.004 in	Ratio =	8454 >=360
Max Upward Total Deflection	0.000 in	Ratio =	0 <360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0043	1.369		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.600	0.300
Overall MINimum	0.400	0.200
D Only	0.200	0.100
+D+Lr	0.600	0.300
+D+0.750Lr	0.500	0.250
+0.60D	0.120	0.060
Lr Only	0.400	0.200

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 19 AUG 2021, 7:11AM
File: RMA-74-ADU.ec6

Wood Beam

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: BEAM 5: PATIO

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

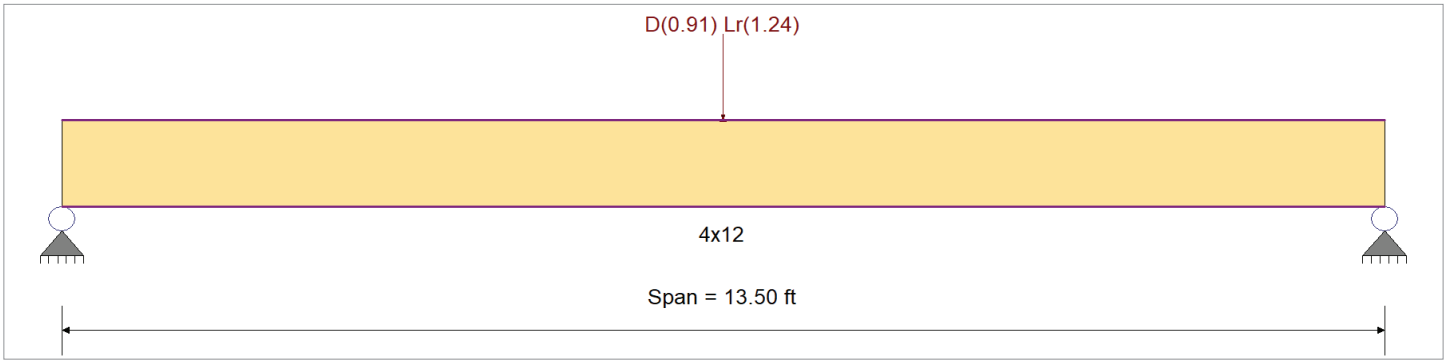
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Point Load : D = 0.910, Lr = 1.240 k @ 6.750 ft, (BEAM #4 RXN)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.652 : 1	Maximum Shear Stress Ratio	=	0.202 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	1,211.03 psi	fv: Actual	=	42.84 psi
Fb: Allowable	=	1,856.25 psi	Fv: Allowable	=	212.50 psi
Load Combination		+D+Lr	Load Combination		+D+Lr
Location of maximum on span	=	6.750 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.166 in	Ratio =	974 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.298 in	Ratio =	543 >=360
Max Upward Total Deflection	0.000 in	Ratio =	0 <360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.2978	6.799		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.133	1.133
Overall MINimum	0.620	0.620
D Only	0.513	0.513
+D+Lr	1.133	1.133
+D+0.750Lr	0.978	0.978
+0.60D	0.308	0.308
Lr Only	0.620	0.620

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 19 AUG 2021, 7:25AM
File: RMA-74-ADU.ec6

Wood Beam

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: BEAM 6: PATIO BEAM

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

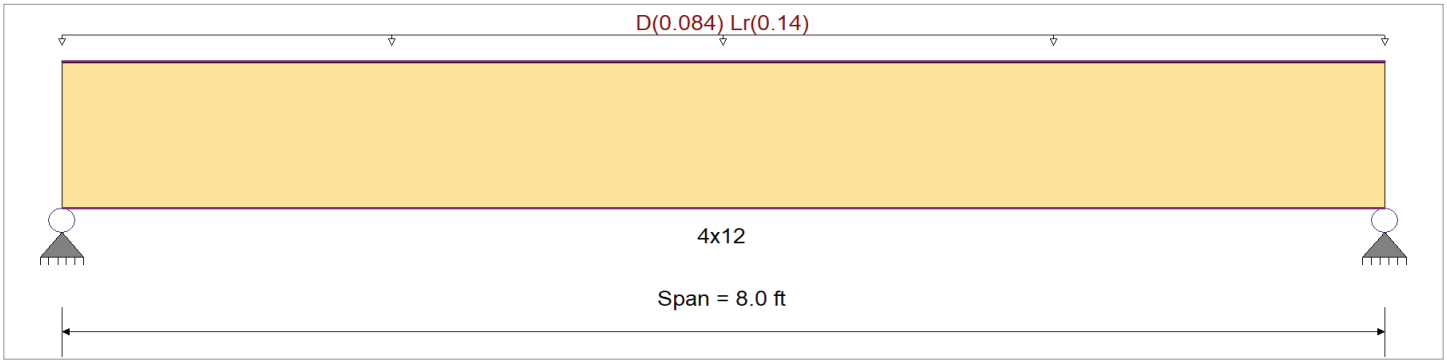
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.0840, Lr = 0.140 , Tributary Width = 1.0 ft, (ROOF LIVE & DEAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.163 : 1	Maximum Shear Stress Ratio	=	0.128 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	302.37 psi	fv: Actual	=	27.16 psi
Fb: Allowable	=	1,856.25 psi	Fv: Allowable	=	212.50 psi
Load Combination		+D+Lr	Load Combination		+D+Lr
Location of maximum on span	=	4.000 ft	Location of maximum on span	=	7.066 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.020 in	Ratio =	4915 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.032 in	Ratio =	2959 >=360
Max Upward Total Deflection	0.000 in	Ratio =	0 <360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0324	4.029		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.930	0.930
Overall MINimum	0.560	0.560
D Only	0.370	0.370
+D+Lr	0.930	0.930
+D+0.750Lr	0.790	0.790
+0.60D	0.222	0.222
Lr Only	0.560	0.560

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 23 AUG 2021, 4:11AM
File: RMA-74-ADU.ec6

Wood Beam

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: BEAM 7: PATIO

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

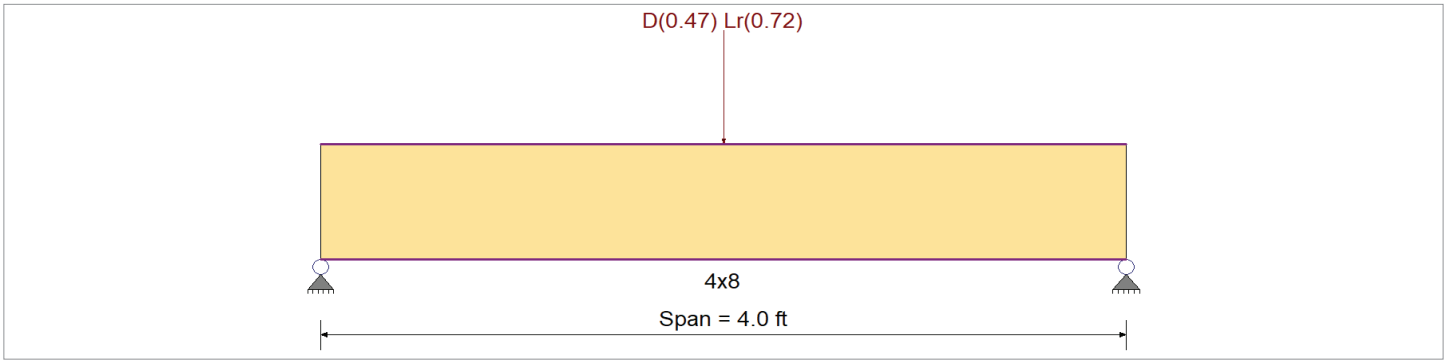
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,350.0 psi
Fb -	1,350.0 psi
Fc - Prll	925.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	675.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Point Load : D = 0.470, Lr = 0.720 k @ 2.0 ft, (BEAM 4 RXN)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	**0.214** : 1	Maximum Shear Stress Ratio	=	**0.168** : 1
Section used for this span		**4x8**	Section used for this span		**4x8**
fb: Actual	=	470.04 psi	fv: Actual	=	35.63 psi
Fb: Allowable	=	2,193.75 psi	Fv: Allowable	=	212.50 psi
Load Combination		+D+Lr	Load Combination		+D+Lr
Location of maximum on span	=	2.000 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.009 in	Ratio =	5117 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.016 in	Ratio =	3061 >=360
Max Upward Total Deflection	0.000 in	Ratio =	0 <360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0157	2.015		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.606	0.606
Overall MINimum	0.360	0.360
D Only	0.246	0.246
+D+Lr	0.606	0.606
+D+0.750Lr	0.516	0.516
+0.60D	0.148	0.148
Lr Only	0.360	0.360

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 18 AUG 2021, 10:19PM

Wood Beam

File: RMA-74-ADU.ec6

Lic. # : KW-06013655

Meleika & associates

DESCRIPTION: RR-1: ROOF RAFTERS

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

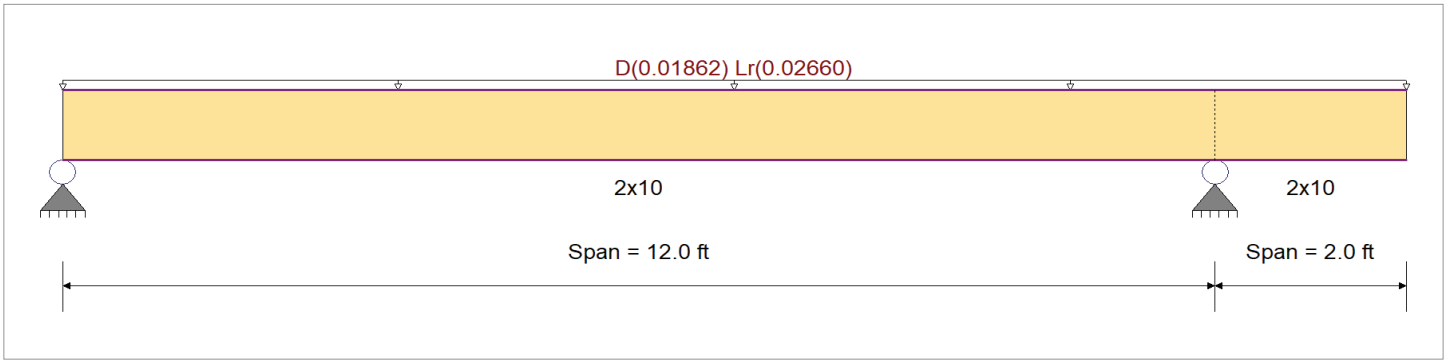
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0140, Lr = 0.020 ksf, Tributary Width = 1.330 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.256 : 1	Maximum Shear Stress Ratio	=	0.133 : 1
Section used for this span		2x10	Section used for this span		2x10
fb: Actual	=	474.93 psi	fv: Actual	=	28.31 psi
Fb: Allowable	=	1,856.25 psi	Fv: Allowable	=	212.50 psi
Load Combination		+D+Lr+H, LL Comb Run (L*)	Load Combination		+D+Lr+H, LL Comb Run (LL)
Location of maximum on span	=	5.899 ft	Location of maximum on span	=	11.263 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.079 in	Ratio =	1820 >=360
Max Upward Transient Deflection	-0.042 in	Ratio =	1146 >=360
Max Downward Total Deflection	0.139 in	Ratio =	1034 >=360
Max Upward Total Deflection	-0.072 in	Ratio =	670 >=360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr+H, LL Comb Run (L*)	1	0.1391	6.034		0.0000	0.000
	2	0.0000	6.034	+D+Lr+H, LL Comb Run (L*)	-0.0716	2.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.286	0.394	
Overall MINimum	0.155	0.217	
+D+H	0.126	0.177	
+D+L+H, LL Comb Run (*L)	0.126	0.177	
+D+L+H, LL Comb Run (L*)	0.126	0.177	
+D+L+H, LL Comb Run (LL)	0.126	0.177	
+D+Lr+H, LL Comb Run (*L)	0.122	0.234	
+D+Lr+H, LL Comb Run (L*)	0.286	0.336	

Wood Beam

DESCRIPTION: RR-1: ROOF RAFTERS

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+Lr+H, LL Comb Run (LL)	0.281	0.394	
+D+S+H	0.126	0.177	
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.123	0.220	
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.246	0.296	
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.243	0.340	
+D+0.750L+0.750S+H, LL Comb Run (*L	0.126	0.177	
+D+0.750L+0.750S+H, LL Comb Run (L*	0.126	0.177	
+D+0.750L+0.750S+H, LL Comb Run (LL	0.126	0.177	
+D+0.60W+H	0.126	0.177	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.123	0.220	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.246	0.296	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.243	0.340	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.126	0.177	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.126	0.177	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.126	0.177	
+0.60D+0.60W+0.60H	0.076	0.106	
+D+0.70E+0.60H	0.126	0.177	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.126	0.177	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.126	0.177	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.126	0.177	
+0.60D+0.70E+H	0.076	0.106	
D Only	0.126	0.177	
Lr Only, LL Comb Run (*L)	-0.004	0.058	
Lr Only, LL Comb Run (L*)	0.160	0.160	
Lr Only, LL Comb Run (LL)	0.155	0.217	
H Only			

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 19 AUG 2021, 12:12AM

Wood Beam

File: RMA-74-ADU.ec6

Lic. # : KW-06013655

Meleika & associates

DESCRIPTION: RR-2: ROOF RAFTERS

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

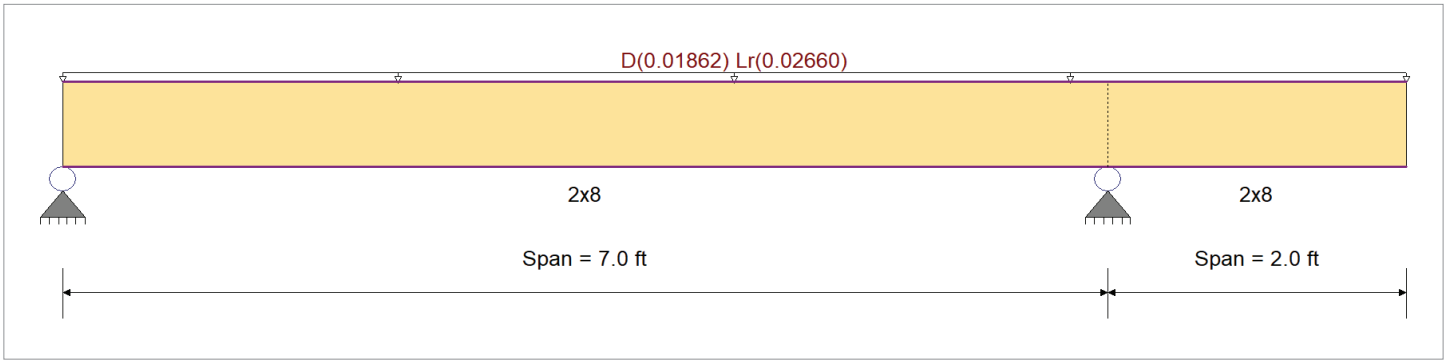
Wood Species : Douglas Fir-Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,350.0 psi
Fb -	1,350.0 psi
Fc - Prll	925.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	675.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0140, Lr = 0.020 ksf, Tributary Width = 1.330 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.122 : 1	Maximum Shear Stress Ratio	=	0.099 : 1
Section used for this span		2x8	Section used for this span		2x8
fb: Actual	=	247.30 psi	fv: Actual	=	20.99 psi
Fb: Allowable	=	2,025.00 psi	Fv: Allowable	=	212.50 psi
Load Combination		+D+Lr+H, LL Comb Run (L*)	Load Combination		+D+Lr+H, LL Comb Run (LL)
Location of maximum on span	=	3.363 ft	Location of maximum on span	=	6.413 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.019 in	Ratio =	4415 >=360
Max Upward Transient Deflection	-0.017 in	Ratio =	2784 >=360
Max Downward Total Deflection	0.031 in	Ratio =	2701 >=360
Max Upward Total Deflection	-0.025 in	Ratio =	1886 >=360

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr+H, LL Comb Run (L*)	1	0.0311	3.480		0.0000	0.000
	2	0.0000	3.480	+D+Lr+H, LL Comb Run (L*)	-0.0254	2.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.161	0.275	
Overall MINimum	0.086	0.154	
+D+H	0.067	0.121	
+D+L+H, LL Comb Run (*L)	0.067	0.121	
+D+L+H, LL Comb Run (L*)	0.067	0.121	
+D+L+H, LL Comb Run (LL)	0.067	0.121	
+D+Lr+H, LL Comb Run (*L)	0.060	0.182	
+D+Lr+H, LL Comb Run (L*)	0.161	0.214	

Wood Beam

DESCRIPTION: RR-2: ROOF RAFTERS

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+Lr+H, LL Comb Run (LL)	0.153	0.275	
+D+S+H	0.067	0.121	
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.062	0.167	
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.137	0.191	
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.132	0.237	
+D+0.750L+0.750S+H, LL Comb Run (*L	0.067	0.121	
+D+0.750L+0.750S+H, LL Comb Run (L*	0.067	0.121	
+D+0.750L+0.750S+H, LL Comb Run (LL	0.067	0.121	
+D+0.60W+H	0.067	0.121	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.062	0.167	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.137	0.191	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.132	0.237	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.067	0.121	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.067	0.121	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.067	0.121	
+0.60D+0.60W+0.60H	0.040	0.073	
+D+0.70E+0.60H	0.067	0.121	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.067	0.121	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.067	0.121	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.067	0.121	
+0.60D+0.70E+H	0.040	0.073	
D Only	0.067	0.121	
Lr Only, LL Comb Run (*L)	-0.008	0.061	
Lr Only, LL Comb Run (L*)	0.093	0.093	
Lr Only, LL Comb Run (LL)	0.086	0.154	
H Only			

9/22/2021 11:48 PM

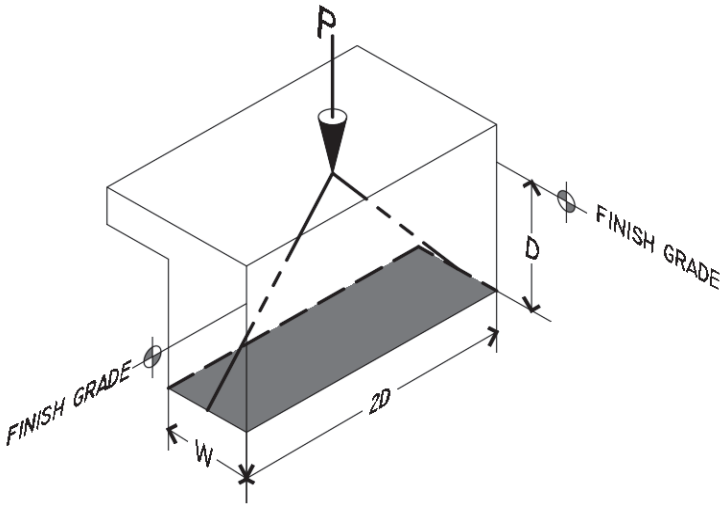
DELTA/ REV: ***1ST PLAN CHECK*** *PR. NAME:* ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** *PR. #:* ***RMA-74-ADU***

MONO-2

DESIGN OF MONOLITHIC FOOTING

FOOTING ISOMETRIC



SOIL BEARING PRESSURE "σ" :	*1000*	*PSF*
FOOTING WIDTH:	*12*	*IN*
LOAD "P"	*2500*	*#*
COMPRESSIVE STRENGTH "fc":	*2500*	*PSI*
Φ FACTOR:	*0.85*	

$$P = 2W*D*\sigma*\Phi \longrightarrow D = \frac{P}{2W*\sigma*\Phi}$$

$$D = \frac{2500}{2*1*1000*0.85} = 18.00 \text{ IN MIN.}$$

FOOTING SIZE: 12 IN WIDE X18 IN DEEP

NOTES:

9/22/2021 11:49 PM

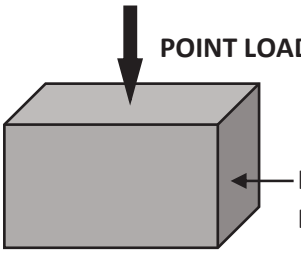
DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

PAD-1

DESIGN OF CONCRETE PADS FOR POINT LOADS

PAD ISOMETRIC



ALLOWABLE SOIL BEARING PRESSURE "σ": *1000 PSF*

REBAR MIN. CONCRETE COVERAGE: *3. IN*

REBAR SPACING: *5. IN*

DESIGN FORMULA:

$$L = (P/\sigma)^{1/2}$$

PAD #	LOAD "P"	σ	L	DEPTH	REBAR SPACING	EDGE DISTANCE	PAD/ REBAR SPEC.
2.5K	*2500 #*	*1000 PSF*	*19*	*12*	*5. IN*	*3. IN*	***19 IN SQ. 12 IN DEEP. W/ 3 #4 E.W.***
3K	*3000 #*	*1000 PSF*	*21*	*13*	*5. IN*	*3. IN*	***21 IN SQ. 13 IN DEEP. W/ 3 #4 E.W.***
3.5K	*3500 #*	*1000 PSF*	*22*	*14*	*5. IN*	*3. IN*	***22 IN SQ. 14 IN DEEP. W/ 3 #4 E.W.***
4K	*4000 #*	1000 PSF	*24*	*15*	*5. IN*	*3. IN*	***24 IN SQ. 15 IN DEEP. W/ 4 #4 E.W.***
4.5K	*4500 #*	*1000 PSF*	*25*	*16*	*5. IN*	*3. IN*	***25 IN SQ. 16 IN DEEP. W/ 4 #4 E.W.***
5K	*5000 #*	*1000 PSF*	*27*	*16*	*5. IN*	*3. IN*	***27 IN SQ. 16 IN DEEP. W/ 4 #4 E.W.***
5.5K	*5500 #*	*1000 PSF*	*28*	*17*	*5. IN*	*3. IN*	***28 IN SQ. 17 IN DEEP. W/ 4 #4 E.W.***
6K	*6000 #*	*1000 PSF*	*29*	*18*	*5. IN*	*3. IN*	***29 IN SQ. 18 IN DEEP. W/ 5 #4 E.W.***
6.5K	*6500 #*	*1000 PSF*	*31*	*18*	*5. IN*	*3. IN*	***31 IN SQ. 18 IN DEEP. W/ 5 #4 E.W.***
7K	*7000 #*	*1000 PSF*	*32*	*19*	*5. IN*	*3. IN*	***32 IN SQ. 19 IN DEEP. W/ 5 #4 E.W.***
7.5K	*7500 #*	*1000 PSF*	*33*	*19*	*5. IN*	*3. IN*	***33 IN SQ. 19 IN DEEP. W/ 5 #4 E.W.***
8K	*8000 #*	1000 PSF	*34*	*20*	*5. IN*	*3. IN*	***34 IN SQ. 20 IN DEEP. W/ 6 #4 E.W.***
8.5K	*8500 #*	*1000 PSF*	*35*	*20*	*5. IN*	*3. IN*	***35 IN SQ. 20 IN DEEP. W/ 6 #4 E.W.***
9K	*9000 #*	*1000 PSF*	*36*	*21*	*5. IN*	*3. IN*	***36 IN SQ. 21 IN DEEP. W/ 6 #4 E.W.***
9.5K	*9500 #*	*1000 PSF*	*37*	*21*	*5. IN*	*3. IN*	***37 IN SQ. 21 IN DEEP. W/ 6 #4 E.W.***

9/22/2021 11:49 PM

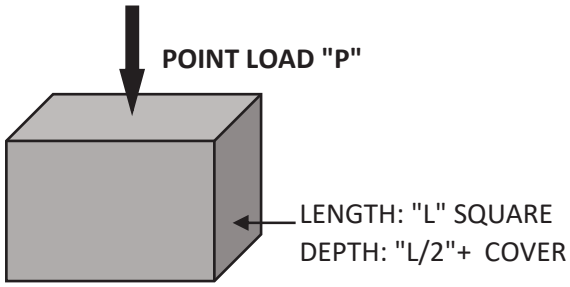
DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

PAD-2

DESIGN OF CONCRETE PADS FOR POINT LOADS (CONTINUED)

PAD ISOMETRIC



PAD #	LOAD "P"	σ	L	DEPTH	REBAR SPACING	EDGE DISTANCE	PAD/ REBAR SPEC.
10K	*10000 #*	*1000 PSF*	*38*	*22*	*5. IN*	*3. IN*	***38 IN SQ. 22 IN DEEP. W/ 6 #4 E.W.***
10.5K	*10500 #*	*1000 PSF*	*39*	*22*	*5. IN*	*3. IN*	***39 IN SQ. 22 IN DEEP. W/ 7 #4 E.W.***
11K	*11000 #*	*1000 PSF*	*40*	*23*	*5. IN*	*3. IN*	***40 IN SQ. 23 IN DEEP. W/ 7 #4 E.W.***
11.5K	*11500 #*	1000 PSF	*41*	*23*	*5. IN*	*3. IN*	***41 IN SQ. 23 IN DEEP. W/ 7 #4 E.W.***
12K	*12000 #*	*1000 PSF*	*42*	*24*	*5. IN*	*3. IN*	***42 IN SQ. 24 IN DEEP. W/ 7 #4 E.W.***
12.5K	*12500 #*	*1000 PSF*	*42*	*24*	*5. IN*	*3. IN*	***42 IN SQ. 24 IN DEEP. W/ 7 #4 E.W.***
13K	*13000 #*	*1000 PSF*	*43*	*25*	*5. IN*	*3. IN*	***43 IN SQ. 25 IN DEEP. W/ 7 #4 E.W.***
13.5K	*13500 #*	*1000 PSF*	*44*	*25*	*5. IN*	*3. IN*	***44 IN SQ. 25 IN DEEP. W/ 8 #4 E.W.***
14K	*14000 #*	*1000 PSF*	*45*	*25*	*5. IN*	*3. IN*	***45 IN SQ. 25 IN DEEP. W/ 8 #4 E.W.***
14.5K	*14500 #*	*1000 PSF*	*46*	*26*	*5. IN*	*3. IN*	***46 IN SQ. 26 IN DEEP. W/ 8 #4 E.W.***
15K	*15000 #*	*1000 PSF*	*46*	*26*	*5. IN*	*3. IN*	***46 IN SQ. 26 IN DEEP. W/ 8 #4 E.W.***
15.5K	*15500 #*	1000 PSF	*47*	*27*	*5. IN*	*3. IN*	***47 IN SQ. 27 IN DEEP. W/ 8 #4 E.W.***
16K	*16000 #*	*1000 PSF*	*48*	*27*	*5. IN*	*3. IN*	***48 IN SQ. 27 IN DEEP. W/ 8 #4 E.W.***
16.5K	*16500 #*	*1000 PSF*	*49*	*27*	*5. IN*	*3. IN*	***49 IN SQ. 27 IN DEEP. W/ 9 #4 E.W.***
17K	*17000 #*	*1000 PSF*	*49*	*28*	*5. IN*	*3. IN*	***49 IN SQ. 28 IN DEEP. W/ 9 #4 E.W.***

9/22/2021 11:49 PM

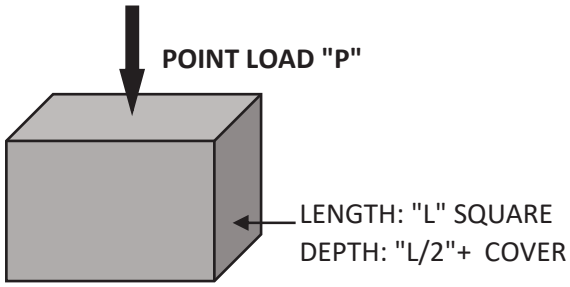
DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

PAD-3

DESIGN OF CONCRETE PADS FOR POINT LOADS (CONTINUED)

PAD ISOMETRIC



PAD #	LOAD "P"	σ	L	DEPTH	REBAR SPACING	EDGE DISTANCE	PAD/ REBAR SPEC.
17.5	*17500 #*	*1000 PSF*	*50*	*28*	*5. IN*	*3. IN*	***50 IN SQ. 28 IN DEEP. W/ 9 #4 E.W.***
18K	*18000 #*	*1000 PSF*	*51*	*28*	*5. IN*	*3. IN*	***51 IN SQ. 28 IN DEEP. W/ 9 #4 E.W.***
18.5K	*18500 #*	*1000 PSF*	*52*	*29*	*5. IN*	*3. IN*	***52 IN SQ. 29 IN DEEP. W/ 9 #4 E.W.***
19K	*19000 #*	1000 PSF	*52*	*29*	*5. IN*	*3. IN*	***52 IN SQ. 29 IN DEEP. W/ 9 #4 E.W.***
19.5K	*19500 #*	*1000 PSF*	*53*	*29*	*5. IN*	*3. IN*	***53 IN SQ. 29 IN DEEP. W/ 9 #4 E.W.***
20K	*20000 #*	*1000 PSF*	*54*	*30*	*5. IN*	*3. IN*	***54 IN SQ. 30 IN DEEP. W/ 10 #4 E.W.***
20.5K	*20500 #*	*1000 PSF*	*54*	*30*	*5. IN*	*3. IN*	***54 IN SQ. 30 IN DEEP. W/ 10 #4 E.W.***
21K	*21000 #*	*1000 PSF*	*55*	*30*	*5. IN*	*3. IN*	***55 IN SQ. 30 IN DEEP. W/ 10 #4 E.W.***
21.5K	*21500 #*	*1000 PSF*	*56*	*31*	*5. IN*	*3. IN*	***56 IN SQ. 31 IN DEEP. W/ 10 #4 E.W.***
22K	*22000 #*	*1000 PSF*	*56*	*31*	*5. IN*	*3. IN*	***56 IN SQ. 31 IN DEEP. W/ 10 #4 E.W.***
22.5K	*22500 #*	*1000 PSF*	*57*	*31*	*5. IN*	*3. IN*	***57 IN SQ. 31 IN DEEP. W/ 10 #4 E.W.***
23K	*23000 #*	1000 PSF	*58*	*32*	*5. IN*	*3. IN*	***58 IN SQ. 32 IN DEEP. W/ 10 #4 E.W.***
23.5K	*23500 #*	*1000 PSF*	*58*	*32*	*5. IN*	*3. IN*	***58 IN SQ. 32 IN DEEP. W/ 10 #4 E.W.***
24K	*24000 #*	*1000 PSF*	*59*	*32*	*5. IN*	*3. IN*	***59 IN SQ. 32 IN DEEP. W/ 11 #4 E.W.***
24.5K	*24500 #*	*1000 PSF*	*59*	*33*	*5. IN*	*3. IN*	***59 IN SQ. 33 IN DEEP. W/ 11 #4 E.W.***

9/23/2021 -1:07 AM

DELTA/ REV: ***1ST PLAN CHECK***

DES: ***ADU ADDITION & ROOF RE-FRAME***

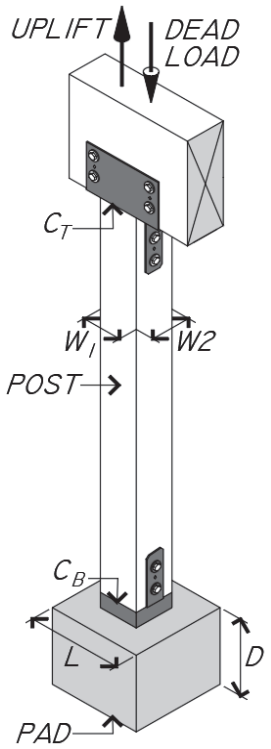
PR. NAME: ***ADD & REFRAME***

PR. #: ***RMA-74-ADU***

UPLIFT-1

ANALYSIS OF UPLIFT DUE TO WIND LOADS

POST #		P1		-		-	
UPLIFT	AREA:	63	CHECK		CHECK		CHECK
	LOAD:	22					
DEAD LOAD	AREA:	63					
	LOAD:	14					
NET LOAD:		**-504**		**0**		**0**	
OUTCOME:		**UPLIFT**		**UPLIFT**		**UPLIFT**	
TOP CONNECT	C_T:	CC		CC		CC	
	(LOAD)	1850	***OK***	1850	***OK***	1850	***OK***
BOTTOM CONNECT	C_B:	CB		CB		CB	
	(LOAD)	5600	***OK***	5600	***OK***	5600	***OK***
WOOD POST	W_1:	5.5		7.25		7.25	
	W_2:	5.5		7.25		7.25	
	LOAD:	575		575		575	
	CAPACITY:	17394	***OK***	30223.44	***OK***	30223.44	***OK***
CONC PAD	PAD #:	3.5K		8K		3.5K	
	L:	22		34		22	
	D:	14		20		14	
	LOAD:	622	***OK***	1997	***OK***	622	***OK***
RESULT:		**LOAD PATH OK**		**LOAD PATH OK**		**LOAD PATH OK**	



NOTE:

THE EFFECTS OF LIVE LOADS ARE NEGATED FROM THE UPLIFT RESISTING LOADS OF THIS CALCULATION

8/23/2021 -8:47 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

V-1

DESIGN OF VERTICAL LOADS AND POSTS:

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
1	6X6 POST	BM-5	BEAM	6X12	520	0	620					1140
		BM-6	BEAM	6X12	560		370					930
												0
												0
				DEAD LOAD TOTAL	**1080**					TOTAL LOADS:		**2070**
										CONCRETE PAD:		**2.5**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
2	6X6 KING POST	BM-4	BEAM	4X8	910		1240					2150
												0
												0
												0
				DEAD LOAD TOTAL	**910**					TOTAL LOADS:		**2150**
										TERMINATES AT		**BEAM #5**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
3	6X6 KING POST	BM-4	BEAM	4X8	910		1240					2150
												0
												0
												0
				DEAD LOAD TOTAL	**910**					TOTAL LOADS:		**2150**
										TERMINATES AT		**BEAM #7**

NOTES:

8/23/2021 -8:46 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

V-2

DESIGN OF VERTICAL LOADS AND POSTS

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
4	6X6 POST	BM-6	BEAM	6X12	370	0	560					930
												0
												0
												0
			DEAD LOAD TOTAL		**370**					TOTAL LOADS:		**930**
										CONCRETE PAD:		**FOOTING**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
5	6X6 POST	BM-7	BEAM	6X8	240		360					600
												0
												0
												0
			DEAD LOAD TOTAL		**240**					TOTAL LOADS:		**600**
										CONCRETE PAD:		**FOOTING**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
6	6X6 POST	BM-1	BEAM	4X12	680		1360					2040
												0
												0
												0
			DEAD LOAD TOTAL		**680**					TOTAL LOADS:		**2040**
										CONCRETE PAD:		**2.5K PAD**

NOTES:

8/23/2021 -8:46 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

V-3

DESIGN OF VERTICAL LOADS AND POSTS

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
7	6X6 POST	BM-2	BEAM	4X8	300		600					900
												0
												0
												0
			DEAD LOAD TOTAL		**300**					TOTAL LOADS:		**900**
										CONCRETE PAD:		**FOOTING**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
8	KING POST	BM-2	BEAM	4X8	300		600					900
												0
												0
												0
			DEAD LOAD TOTAL		**300**					TOTAL LOADS:		**900**
										TERMINATES AT:		**BM-3**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
9	6X6 POST	BM-3	BEAM	4X8	200		400					600
												0
												0
												0
			DEAD LOAD TOTAL		**200**					TOTAL LOADS:		**600**
										CONCRETE PAD:		**FOOTING**

NOTES:

8/23/2021 -8:45 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

V-4

DESIGN OF VERTICAL LOADS AND POSTS

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
10	6X6 POST	BM-3	BEAM	4X8	100		200					300
												0
												0
												0
			DEAD LOAD TOTAL		**100**					TOTAL LOADS:		**300**
										CONCRETE PAD:		**FOOTING**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
												0
												0
												0
												0
			DEAD LOAD TOTAL		**0**					TOTAL LOADS:		**0**
										TERMINATES AT:		**BM-3**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
												0
												0
												0
												0
			DEAD LOAD TOTAL		**0**					TOTAL LOADS:		**0**
										CONCRETE PAD:		**FOOTING**

NOTES:

8/23/2021 -8:46 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

V-4

DESIGN OF VERTICAL LOADS AND POSTS

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
10	6X6 POST	BM-3	BEAM	4X8	100		200					300
												0
												0
												0
			DEAD LOAD TOTAL		**100**					TOTAL LOADS:		**300**
										CONCRETE PAD:		**FOOTING**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
												0
												0
												0
												0
			DEAD LOAD TOTAL		**0**					TOTAL LOADS:		**0**
										TERMINATES AT:		**BM-3**

POST		LOADS FROM:			LOADS APPLIED (LBS)							
ID	**USE**	**ID**	**TYPE**	**SIZE**	**D**	**L**	**Lr**	**E**	**S**	**W**	**OTHER**	**TOTAL**
												0
												0
												0
												0
			DEAD LOAD TOTAL		**0**					TOTAL LOADS:		**0**
										CONCRETE PAD:		**FOOTING**

NOTES:

Hazards by Location

Search Information

Address: 45750 250th St E, Lancaster, CA 93535, USA

Coordinates: 34.715381, -117.688093

Elevation: 2990 ft

Timestamp: 2021-09-23T02:56:08.071Z

Hazard Type: Seismic

Reference Document: ASCE7-16

Risk Category: II

Site Class: D-default

Basic Parameters

Name	Value	Description
S_S	0.995	MCE_R ground motion (period=0.2s)
S_1	0.399	MCE_R ground motion (period=1.0s)
S_{MS}	1.194	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	0.796	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.926	Coefficient of risk (0.2s)
CR_1	0.914	Coefficient of risk (1.0s)
PGA	0.434	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.521	Site modified peak ground acceleration

T_L	12	Long-period transition period (s)
SsRT	0.995	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.075	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.399	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.436	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 22 SEP 2021, 7:58PM
File: RMA-74-ADU.ec6

ASCE Seismic Base Shear

Lic. # : KW-06013655 — Meleika & associates

DESCRIPTION: DESIGN BASE SHEAR

DESIGN BASE SHEAR

Risk Category

Calculations per ASCE 7-10

Risk Category of Building or Other Structure : "II" : All Buildings and other structures except those listed as Category I, III, and IV — *ASCE 7-10, Page 2, Table 1.5-1*

Seismic Importance Factor = 1 — *ASCE 7-10, Page 5, Table 1.5-2*

USER DEFINED Ground Motion

ASCE 7-10 11.4.1

Max. Ground Motions, 5% Damping :

S_S = 0.9950 g, 0.2 sec response
S_1 = 0.3990 g, 1.0 sec response

Site Class, Site Coeff. and Design Category

Site Classification "D" : Shear Wave Velocity 600 to 1,200 ft/sec = **D** (Based on Testing) — *ASCE 7-10 Table 20.3-1*

Site Coefficients Fa & Fv — *ASCE 7-10 Table 11.4-1 & 11.4-2*
(using straight-line interpolation from table values)
Fa = 1.10
Fv = 1.60

Maximum Considered Earthquake Acceleration
S_{MS} = Fa * Ss = 1.096 — *ASCE 7-10 Eq. 11.4-1*
S_{M1} = Fv * S1 = 0.639 — *ASCE 7-10 Eq. 11.4-2*

Design Spectral Acceleration
$S_{DS} = S_{MS} * 2/3$ = 0.731 — *ASCE 7-10 Eq. 11.4-3*
$S_{D1} = S_{M1} * 2/3$ = 0.426 — *ASCE 7-10 Eq. 11.4-4*

Seismic Design Category = **D** — *ASCE 7-10 Table 11.6-1 & -2*

Resisting System

ASCE 7-10 Table 12.2-1

Basic Seismic Force Resisting System . . . **Bearing Wall Systems**
13.Light-frame (wood) walls sheathed w/wood structural panels rated for shear resistance.

Response Modification Coefficient " R " = 6.50
System Overstrength Factor " Wo " = 3.00
Deflection Amplification Factor " Cd " = 4.00

NOTE! See ASCE 7-10 for all applicable footnotes.

Building height Limits :
Category "A & B" Limit: No Limit
Category "C" Limit: No Limit
Category "D" Limit: Limit = 65
Category "E" Limit: Limit = 65
Category "F" Limit: Limit = 65

Lateral Force Procedure

ASCE 7-10 Section 12.8.2

Equivalent Lateral Force Procedure

The "Equivalent Lateral Force Procedure" is being used according to the provisions of ASCE 7-10 12.8

Determine Building Period

Use ASCE 12.8-7

Structure Type for Building Period Calculation : All Other Structural Systems
" Ct " value = 0.020
" x " value = 0.75
" hn " : Height from base to highest level = 13.0 ft
" Ta " Approximate fundemental period using Eq. 12.8-7 : Ta = Ct * (hn ^ x) = 0.137 sec
"TL" : Long-period transition period per ASCE 7-10 Maps 22-12 -> 22-16 = 8.000 sec

= 0.137 sec

" Cs " Response Coefficient

ASCE 7-10 Section 12.8.1.1

S_{DS}: Short Period Design Spectral Response = 0.731
" R " : Response Modification Factor = 6.50
" I " : Seismic Importance Factor = 1

From Eq. 12.8-2, Preliminary Cs = 0.112
From Eq. 12.8-3 & 12.8-4 , Cs need not exceed = 0.479
From Eq. 12.8-5 & 12.8-6, Cs not be less than = 0.032

Cs : Seismic Response Coefficient = 0.1125

Seismic Base Shear

ASCE 7-10 Section 12.8.1

Cs = 0.1125 from 12.8.1.1

W (see Sum Wi below) = 0.00 k
Seismic Base Shear V = Cs * W = 0.00 k

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 22 SEP 2021, 7:58PM

ASCE Seismic Base Shear

File: RMA-74-ADU.ec6

Lic. # : KW-06013655

Meleika & associates

DESCRIPTION: DESIGN BASE SHEAR

Vertical Distribution of Seismic Forces

ASCE 7-10 Section 12.8.3

" k " : hx exponent based on Ta = 1.00

Table of building Weights by Floor Level...

Level #	Wi : Weight	Hi : Height	(Wi * Hi^k)	Cvx	Fx=Cvx * V	Sum Story Shear	Sum Story Moment
Sum Wi =	0.00 k	Sum Wi * Hi =	0.00 k-ft		Total Base Shear =	0.00 k	
						Base Moment =	0.0 k-ft

Diaphragm Forces : Seismic Design Category "B" to "F"

ASCE 7-10 12.10.1.1

Level #	Wi	Fi	Sum Fi	Sum Wi	Fpx : Calcd	Fpx : Min	Fpx : Max	Fpx	Dsgn. Force

Wpx . . . . . Weight at level of diaphragm and other structure elements attached to it.

Fi . . . . . Design Lateral Force applied at the level.

Sum Fi . . . . . Sum of "Lat. Force" of current level plus all levels above

MIN Req'd Force @ Level . . . . . 0.20 * S^{*}_{DS} I * Wpx

MAX Req'd Force @ Level . . . . . 0.40 * S^{*}_{DS} I * Wpx

Fpx : Design Force @ Level . . . . . Wpx * SUM(x->n) Fi / SUM(x->n) wi, x = Current level, n = Top Level

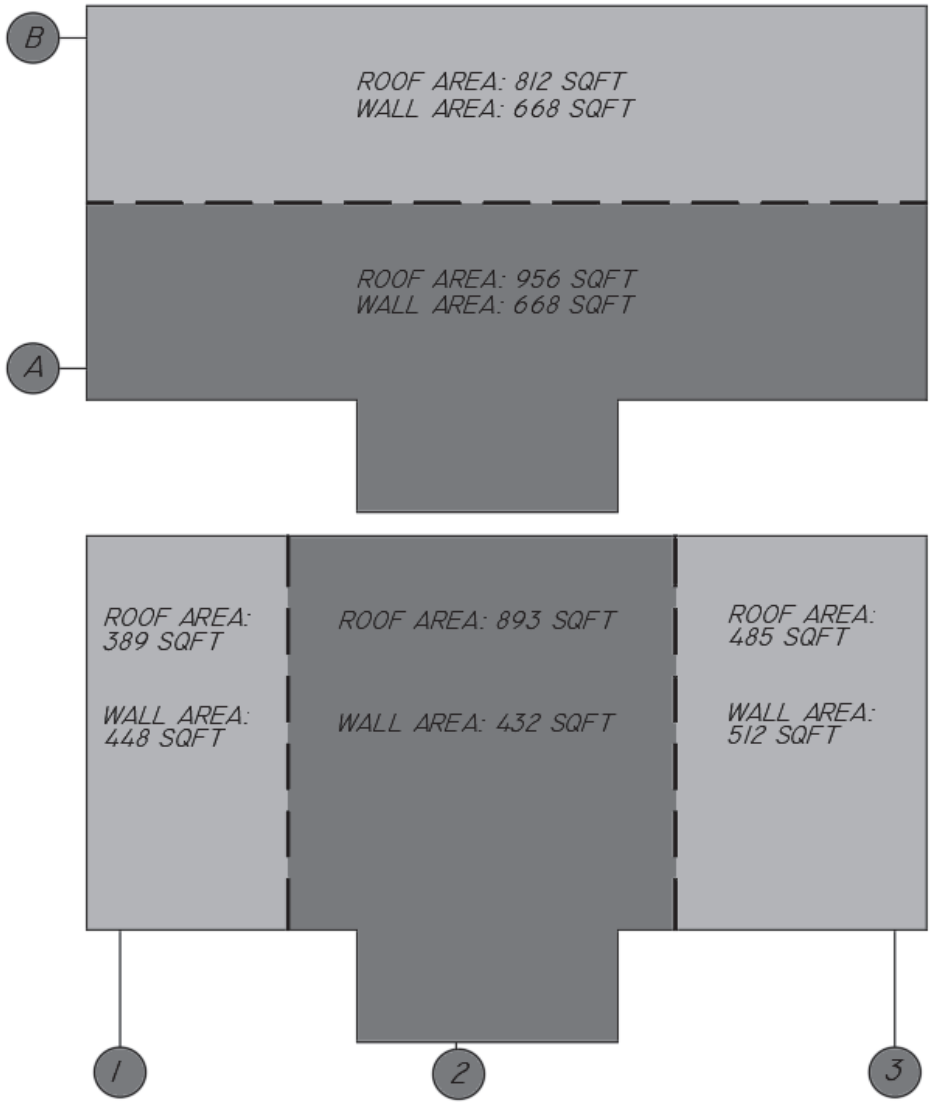
DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

SEIS-1

SEISMIC LOAD DIAGRAMS

C_S	GRIDLINE	LOAD "L"	AREA "A"	C_SxLxA
0.12	A	24	812	2338.56
		18	668	1442.88
				0
				0
		TOTAL LOAD:		**3781.44**
	GRIDLINE	**LOAD**	**AREA**	**C_SxLxA**
	B	24	956	2753.28
		18	668	1442.88
				0
				0
		TOTAL LOAD:		**4196.16**
	GRIDLINE	**LOAD**	**AREA**	**C_SxLxA**
	1	24	389	1120.32
		18	448	967.68
				0
				0
		TOTAL LOAD:		**2088**
	GRIDLINE	**LOAD**	**AREA**	**C_SxLxA**
	2	24	893	2571.84
		18	432	933.12
				0
				0
		TOTAL LOAD:		**3504.96**
	GRIDLINE	**LOAD**	**AREA**	**C_SxLxA**
	3	24	485	1396.8
		18	512	1105.92
				0
		TOTAL LOAD:		**2502.72**



Plan Check

Plan Check Engineer Staff

Raeann Griffith (661) 945-6872

Plan Review

Your plans will be reviewed by one of our plan check engineers to verify that all buildings and structures will be constructed in compliance with all state and city codes and for structural safety, fire protection, exiting, energy conservation, light and ventilation, and disabled access requirements. Upon completion of your initial review, you will be provided a correction list of the items that do not meet code requirements. Once you make the necessary changes, you will need to return the plans for a second review. When all corrections have been completed and all required agency approvals obtained, our plan check engineers will approve your plans.

Other Agency Approvals Required

Your plans will be routed by our staff to the Community Development Department and the Utility Services Division. You must make a separate submittal to the Los Angeles County Fire Department for review of the codes they enforce. The Fire Department can be reached at (661) 949-6319. If applicable, you may be required to submit plans to Los Angeles County Health Department. They can be reached at (661) 723-4533.

Who may prepare plans?

Unlicensed Individuals – An unlicensed person may prepare plans for new buildings or additions to a building as follows:

- Single family dwellings of wood frame construction not more than two stories and a basement in height
- Multifamily dwellings of wood frame construction not more than two stories and a basement in height, except that there may be no more than four dwelling units on any one lot
- Garages and other appurtenant structures of wood frame construction not more than two stories and a basement in height
- Agricultural and ranch building of wood frame construction
- Interior nonstructural alterations which do not affect the structural system or the safety of the building

However, any of the above buildings that are not of conventional wood frame construction or have unusual design features or where there is insufficient lateral bracing shall be designed by a registered civil engineer or certified architect when required by the building official.

How long will it take to have my plans checked?

Depending on the size, complexity, and nature of your project, the plans may be checked over-the-counter, or you may be required to submit them for review. Typically, smaller projects can be plan checked at the front counter. Larger projects and plans that entail a more time consuming review are required to be submitted for review, and the first plan check is usually complete within three weeks.

What are the structural design requirements?

- Basic Wind Speed = Exposure C
  - Risk Category I : 90 mph
  - Risk Category II: 95 mph
  - Risk Category III: 100 mph
  - Risk Category IV: 105 mph

  Or as location specific wind speeds as determined by http://atcouncil.org/windspeed

- Roof Live Load = 20 psf, *non-reducible* (for roof pitch 4:12 or less)
- Rainfall Intensity = 3 inches per hour
- California Climate Zone = 14

What Building Code is enforced?

- Lancaster enforces the requirements of the 2019 California Building, Electrical, Mechanical, Plumbing and Energy codes and the applicable amendments of the City of Lancaster set forth in Ordinance No. 1067.

What do I need to provide for plan check submittal?

A. Minimum Plan Submittal Requirements

Commercial and Industrial Buildings

- One pdf formatted set of complete plans organized by disciplines (e.g. architectural, structural, MEP, energy, etc.) shall be submitted; partially completed plans will not be accepted.
- All plans and applications shall include an accurate description of the entire scope of work.
- Any paper plans submitted must be legible, blue-line copies (no ink), fully dimensioned, and drawn to scale (minimum 1/8" scale, 1/4" recommended). Superfluous general notes and details which do not apply to the proposed construction project shall not be included on the plans.
- All plans submitted must be signed by the person responsible for their preparation. When required, plans must be wet stamped or electronically stamped and signed by a licensed architect or engineer registered in the state of California.
- A fully dimensioned **SITE PLAN** which contains the following information is required:
  - Project address, including suite number, if appropriate, and legal description.
  - Include the name, address, and telephone numbers of the owner and the person responsible for the preparation of the plans.
  - All easements with dimensions
  - Lot area
  - Landscaping, floor area ration, and lot coverage tabulations in both square feet and as a percent (%) of the lot.
  - North arrow
  - All structure-to-property line setback dimensions (existing and proposed).
  - Location of all property lines.
  - Dimensions of all architectural projections (mansards, marquees, bay windows, signs, cornices, balconies, awnings, eaves, etc.).

Project Title: LAZARO DIAZ ADU
Engineer: S.MELEIKA
Project ID: RMA-74-ADU
Project Descr: ADU AND ROOF RE-FRAMING

Printed: 22 SEP 2021, 7:54PM

ASCE 7-16 Wind Forces Chpt 28, Pt2 & Chpt 30, Pt2

File: RMA-74-ADU.ec6

Lic. # : KW-06013655

Meleika & associates

DESCRIPTION: DESIGN WIND LOADS

General Design Values

Calculations per ASCE 7-16

V : Basic Wind Speed per Sect 26.5-1 or 2	**95.0**	mph
User specified minimum design pressure	10.0	psf
Occupancy per Table 1.5-1	II	All Buildings and other structures except those listed
Exposure Category per 26.7	Exposure C	
Topographic Factor Kzt per 26.8	**1.00**	

Main Force Resisting System Values

MRH : Mean Roof Height	13.0	ft
Roof Rise:Run Ratio	4:12	

Component & Cladding Values

Effective Wind Area of Component & Cladding	10.0	ft^2
Roof pitch for cladding pressure	Flat/Hip/Gable Roof	
LHD : Least Horizontal Dimension	32.0	ft
a = max (0.04 * LHD, 3, min(0.10 * LHD, 0.4*MRH))	**3.20**	ft

Lambda MWFRS: per Figure 26.8-1 **1.21**

Lambda Componant & Cladding : per Figure 30.4-1 **1.21**

Design Wind Pressures

Horizontal Pressures . . .

Zone: A =	23.96 psf	Zone: C =	15.97 psf
Zone: B =	-10.00 psf	Zone: D =	-10.00 psf

Vertical Pressures . . .

Zone: E =	-20.81 psf	Zone: G =	-14.52 psf
Zone: F =	-14.52 psf	Zone: H =	-11.01 psf

Overhangs . . .

Zone: Eoh =	-29.16 psf	Zone: Goh =	-22.75 psf

ASCE 7-16 Section 28.5.4 Minimum Design Wind Loads requires that the load effects of the design wind pressures from Section 28.5.3 shall not be less than a minimum load defined by assuming the pressures, ps, for zones A and C equal to +16 psf, Zones B and D equal to +8 psf, while assuming ps for Zones E, F, G, and H are equal to 0 psf.

Component & Cladding Design Wind Pressures

*Design Wind Pressure = Lambda * Kzt * Ps30 per Eq 30.4-1*

Roof Pressures	Positive	Negative	Overhang Pressures	Negative
Zone 1	10.000	-31.339 psf	Zone 1	*** psf
Zone 1'	10.000	-18.029 psf	Zone 1'	*** psf
Zone 2	10.000	-41.261 psf	Zone 2	-34.727 psf
Zone 2e	***	*** psf	Zone 2e	*** psf
Zone 2n	***	*** psf	Zone 2n	*** psf
Zone 2r	***	*** psf	Zone 2r	*** psf
Zone 3	10.000	-56.265 psf	Zone 3	-47.069 psf
Zone 3e	***	*** psf	Zone 3e	*** psf
Zone 3r	***	*** psf	Zone 3r	*** psf

Wall Pressures

Wall Zone 4 :	***	*** psf
Wall Zone 5 :	***	*** psf

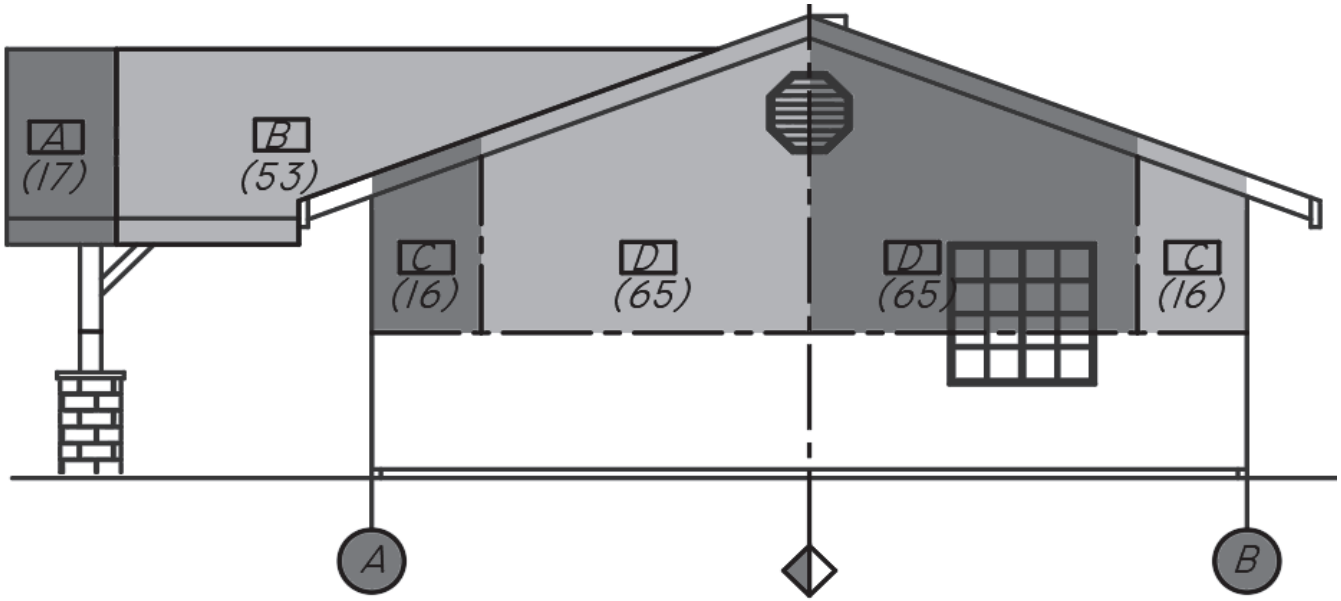
'*** : There is no value in Figure 30.4-1 Tabular Values

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

WD-1

WIND LOAD DIAGRAMS



GRIDLINE	ZONE	LOAD	AREA	TOTAL
A	A	10	17	170
	B	10	53	530
	C	24	16	384
	D	16	65	1040
				0
				0
				0
				0
				0
				0
		TOTAL LOA	AREA	2124

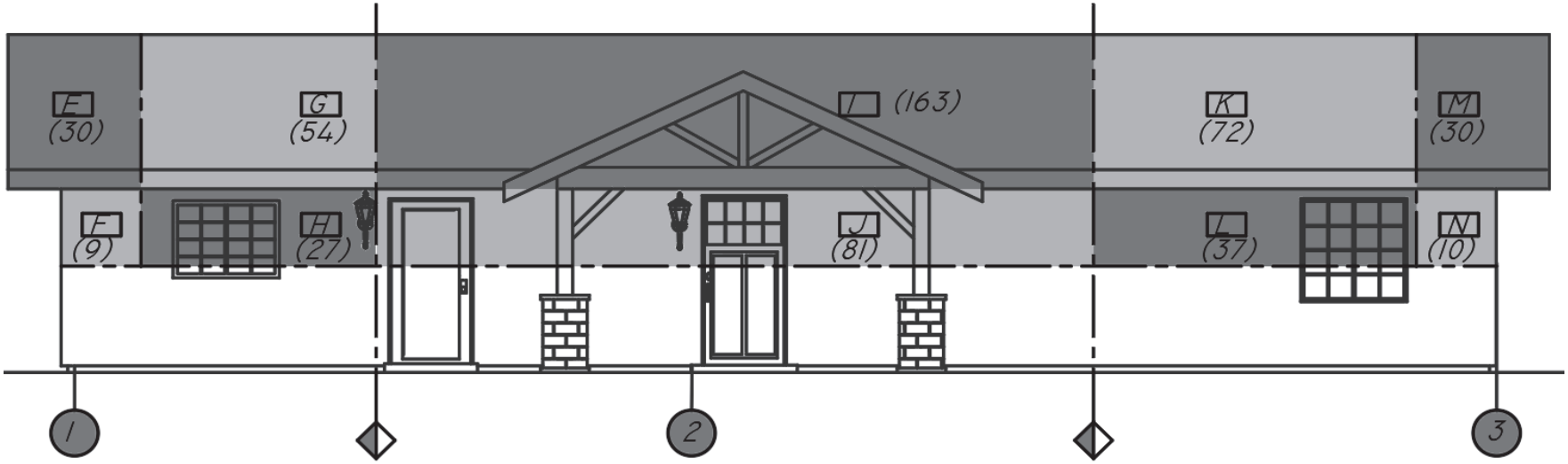
GRIDLINE	ZONE	LOAD	AREA	TOTAL
B	C	24	16	384
	D	16	65	1040
				0
				0
				0
				0
				0
				0
				0
				0
				0
		TOTAL LOA	AREA	1424

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAME*** PR. #: ***RMA-74-ADU***

WD-2

WIND LOAD DIAGRAMS



GRIDLINE	ZONE	LOAD	AREA	TOTAL
1	E	10	30	300
	F	24	9	216
	G	16	54	864
	H	16	27	432
		TOTAL LOAD:		**1812**

GRIDLINE	ZONE	LOAD	AREA	TOTAL
2	I	16	163	2608
	J	16	81	1296
				0
				0
		TOTAL LOAD:		**3904**

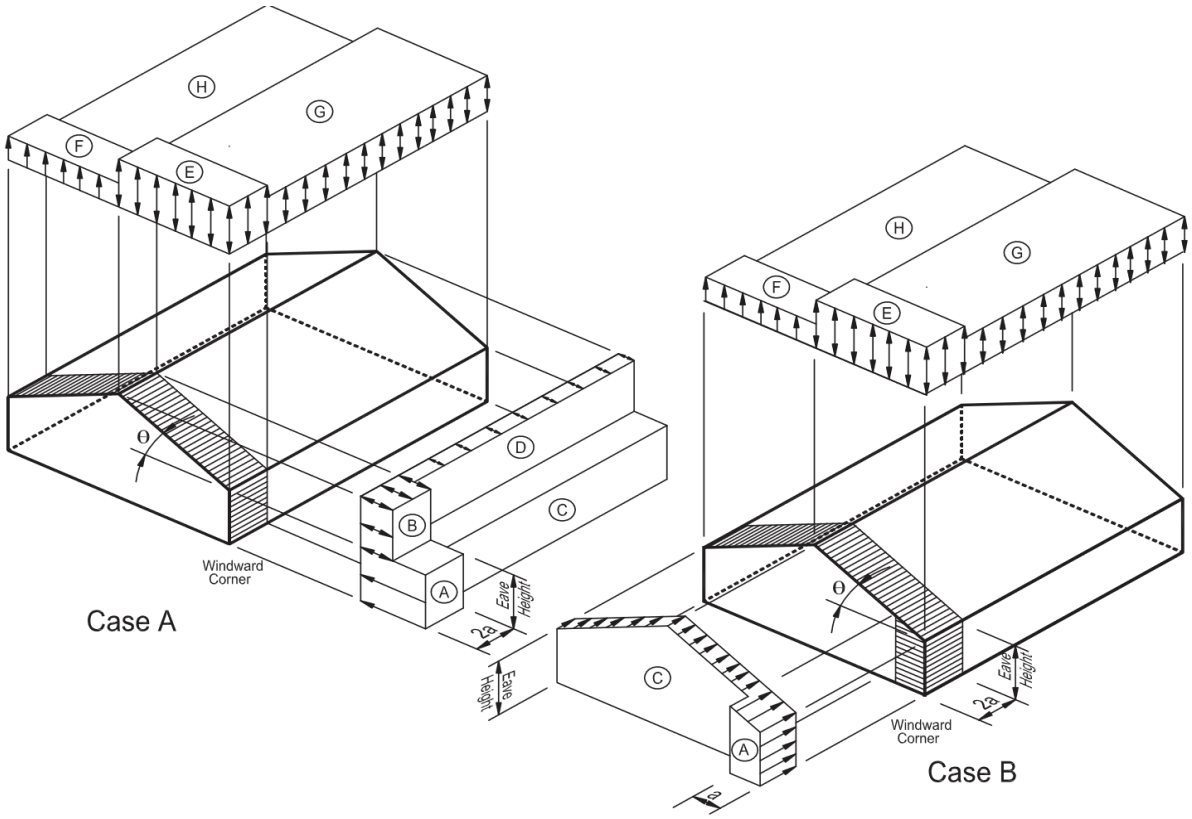
GRIDLINE	ZONE	LOAD	AREA	TOTAL
3	K	16	72	1152
	L	16	37	592
	M	10	30	300
	N	24	10	240
		TOTAL LOAD:		**2284**

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROOF RE-FRAM*** PR. #: ***RMA-74-ADU***

WIND-1

ASCE 7-10, 28.6: WIND LOADS, MAIN WIND FORCE RESISTING SYSTEM



Notes:

1. Pressures shown are applied to the horizontal and vertical projections, for exposure B, at h=30 ft (9.1m). Adjust to other exposures and heights with adjustment factor λ.
2. The load patterns shown shall be applied to each corner of the building in turn as the reference corner. (See Figure 28.4-1)
3. For Case B use $\theta = 0°$.
4. Load cases 1 and 2 must be checked for $25° < \theta \leq 45°$. Load case 2 at 25° is provided only for interpolation between 25° and 30°.
5. Plus and minus signs signify pressures acting toward and away from the projected surfaces, respectively.
6. For roof slopes other than those shown, linear interpolation is permitted.
7. The total horizontal load shall not be less than that determined by assuming $p_S = 0$ in zones B & D.
8. Where zone E or G falls on a roof overhang on the windward side of the building, use E_{OH} and G_{OH} for the pressure on the horizontal projection of the overhang. Overhangs on the leeward and side edges shall have the basic zone pressure applied.
9. Notation:
   - *a:* 10 percent of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m).
   - *h:* Mean roof height, in feet (meters), except that eave height shall be used for roof angles <10°.
   - *θ:* Angle of plane of roof from horizontal, in degrees.

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DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROC*** PR. #: ***RMA-74-ADU***

LATERAL-1

GRID LINE ANALYSIS OF SEISMIC VS. WIND

GRID LINE	SEISMIC				WIND			ADDITIONAL LOADS				
	Cs	AREA	LOAD	TOTAL	LOAD	AREA	TOTAL	GRIDLINE	LOAD	TYPE	%	TOTAL
	0.12	812	24	**2338.56**	2124	1	**2124**	-	0	0		*0*
A	0.12	668	18	**1442.88**			**0**	-	0	0		*0*
				0			**0**	-	0	0		*0*
				0			**0**	**SEISMIC**	**CONTROLS**	→		3781
			Σ	**3781.44**		**Σ**	**2124**				**DESIGN LOAD:**	**3781**

	Cs	AREA	LOAD	TOTAL	LOAD	AREA	TOTAL	GRIDLINE	LOAD	TYPE	%	TOTAL
	0.12	956	24	**2753.28**	1424	1	**1424**	-	0	0	0%	*0*
B	0.12	668	18	**1442.88**			**0**	-	0	0		*0*
				0			**0**	-	0	0		*0*
				0			**0**	**SEISMIC**	**CONTROLS**	→		4196
			Σ	**4196.16**		**Σ**	**1424**				**DESIGN LOAD:**	**4196**

	Cs	AREA	LOAD	TOTAL	LOAD	AREA	TOTAL	GRIDLINE	LOAD	TYPE	%	TOTAL
	0.12	389	24	**1120.32**	1812	1	**1812**	-	0	0	0%	*0*
1	0.12	448	18	**967.68**			**0**	-	0	0		*0*
				0			**0**	-	0	0		*0*
				0			**0**	**SEISMIC**	**CONTROLS**	→		2088
			Σ	**2088**		**Σ**	**1812**				**DESIGN LOAD:**	**2088**

9/22/202111:19 PM 11:19 PM

DELTA/ REV: ***1ST PLAN CHE*** PR. NAME: ***ADD & REFRAME***

DES: ***ADU ADDITION & ROC*** PR. #: ***RMA-74-ADU***

LATERAL-2

GRID LINE ANALYSIS OF SEISMIC VS. WIND

GRID LINE	SEISMIC				WIND			ADDITIONAL LOADS				
	Cs	AREA	LOAD	TOTAL	LOAD	AREA	TOTAL	GRIDLINE	LOAD	TYPE	%	TOTAL
	0.12	893	24	**2571.84**	3904	1	**3904**	-	0	0		*0*
2	0.12	432	18	**933.12**			**0**	-	0	0		*0*
				0			**0**	-	0	0		*0*
				0			**0**	**WIND**	**CONTROLS**	→		3904
			Σ	**3504.96**		**Σ**	**3904**				**DESIGN LOAD:**	**3904**

	Cs	AREA	LOAD	TOTAL	LOAD	AREA	TOTAL	GRIDLINE	LOAD	TYPE	%	TOTAL
	0.12	485	24	**1396.8**	2284	1	**2284**	-	0	0	0%	*0*
3	0.12	512	18	**1105.92**			**0**	-	0	0		*0*
				0			**0**	-	0	0		*0*
				0			**0**	**SEISMIC**	**CONTROLS**	→		2503
			Σ	**2502.72**		**Σ**	**2284**				**DESIGN LOAD:**	**2503**

	Cs	AREA	LOAD	TOTAL	LOAD	AREA	TOTAL	GRIDLINE	LOAD	TYPE	%	TOTAL
				0			**0**	-	0	0	0%	*0*
				0			**0**	-	0	0		*0*
				0			**0**	-	0	0		*0*
				0			**0**			→		0
			Σ	**0**		**Σ**	**0**				**DESIGN LOAD:**	**0**

SHEAR WALL PANEL ANALYSIS (ASD)

9/22/2021 11:21 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME*** CHECK: ***OK***

DES: ***ADU ADDITION & ROOF RE-FRAM*** PR. #: ***RMA-74-ADU***

GRID LINE	1

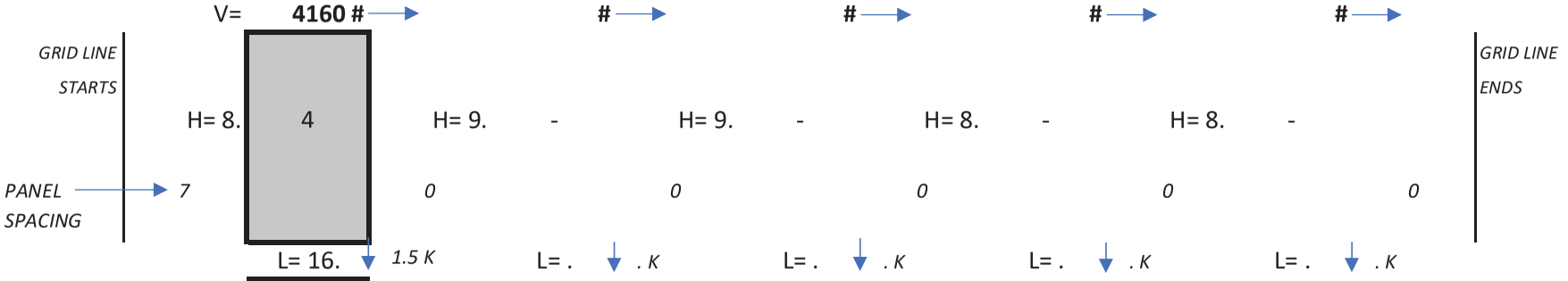
GRIDLINE LENGTH: 23.0

2088 # V-REQ'D

4160 # V-TOTAL

LOAD INPUTS:

GRIDLINE	LOAD	TYPE	%	TOTAL	NOTES
1	*2088*	*SEISMIC*	*100%*	*2088*	
-	*0*	*0*	*100%*	*0*	
-	*0*	*0*	*100%*	*0*	



PANEL	A
H/W RATIO	0.50
% CAPACITY	100%
SW LOAD	260
UNIT	PLF
LOAD CASE	D+0.7E
OVER TURNING	23296
RESISTING	0
HOLD DOWN -1	HDU2
LOAD	3100
HOLD DOWN-2	N/A
LOAD	
CHECK	OK

MAX FORCE AT TOP PLATE IS **1266 #** MSTA 36 REQ'D AT TOP PLATE SPLICE **2050 # >** 1266 # OK

SHEAR WALL PANEL ANALYSIS (ASD)

9/22/2021 11:22 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME*** CHECK: ***ERROR!***

DES: ***ADU ADDITION & ROOF RE-FRAM*** PR. #: ***RMA-74-ADU***

GRID LINE	2

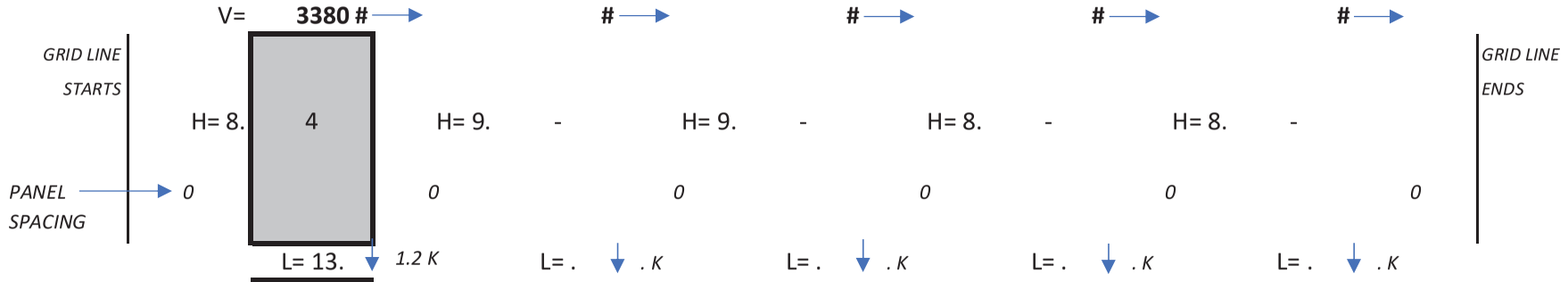
GRIDLINE LENGTH: 13.0

3904 # V-REQ'D

3380 # V-TOTAL

LOAD INPUTS:

GRIDLINE	LOAD	TYPE	%	TOTAL	NOTES
2	*3904*	*WIND*	*100%*	*3904*	
-	*0*	*0*	*100%*	*0*	
-	*0*	*0*	*100%*	*0*	



PANEL	A
H/W RATIO	0.62
% CAPACITY	100%
SW LOAD	260
UNIT	PLF
LOAD CASE	D+0.6W
OVER TURNING	16224
RESISTING	0
HOLD DOWN -1	HDU2
LOAD	3100
HOLD DOWN-2	N/A
LOAD	
CHECK	OK

MAX FORCE AT TOP PLATE IS **#** MSTI48 REQ'D AT TOP PLATE SPLICE **5070 # >** # OK

SHEAR WALL PANEL ANALYSIS (ASD)

9/22/2021 11:24 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME*** CHECK: ***OK***

DES: ***ADU ADDITION & ROOF RE-FRAM*** PR. #: ***RMA-74-ADU***

GRID LINE	3

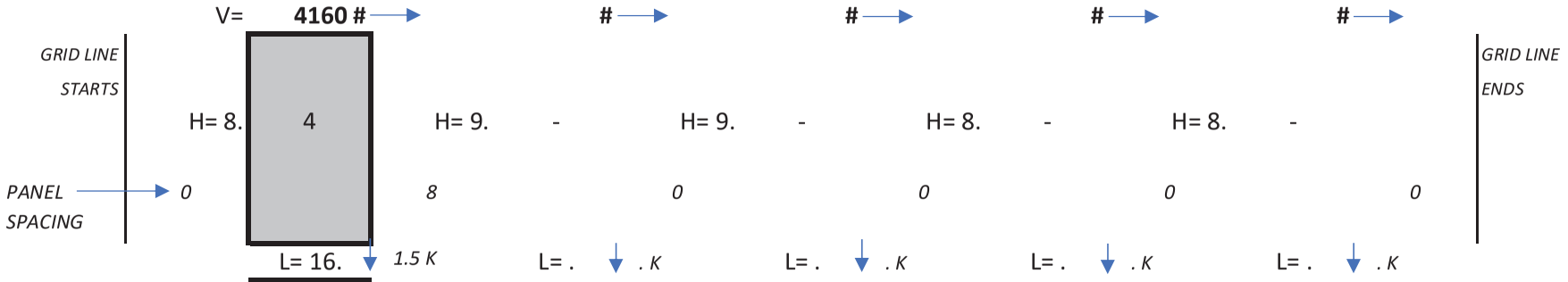
GRIDLINE LENGTH: 24.0

2503 # V-REQ'D

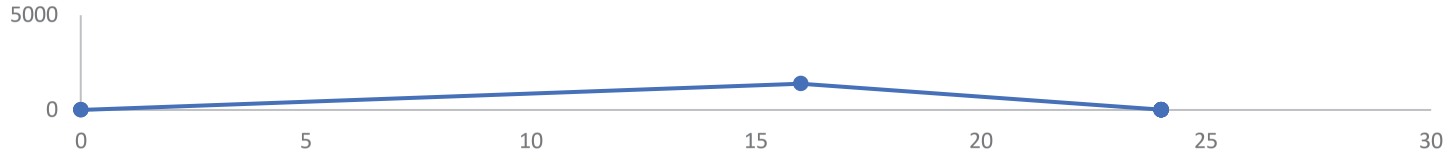
4160 # V-TOTAL

LOAD INPUTS:

GRIDLINE	LOAD	TYPE	%	TOTAL	NOTES
3	*2503*	*SEISMIC*	*100%*	*2503*	
-	*0*	*0*	*100%*	*0*	
-	*0*	*0*	*100%*	*0*	



PANEL	A
H/W RATIO	0.50
% CAPACITY	100%
SW LOAD	260
UNIT	PLF
LOAD CASE	D+0.7E
OVER TURNING	23296
RESISTING	0
HOLD DOWN -1	HDU2
LOAD	3100
HOLD DOWN-2	N/A
LOAD	
CHECK	OK



MAX FORCE AT TOP PLATE IS **1387 #** MSTI36 REQ'D AT TOP PLATE SPLICE **3800 # >** 1387 # OK

SHEAR WALL PANEL ANALYSIS (ASD)

9/22/2021 11:27 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME*** CHECK: ***OK***

DES: ***ADU ADDITION & ROOF RE-FRAM*** PR. #: ***RMA-74-ADU***

GRID LINE	A

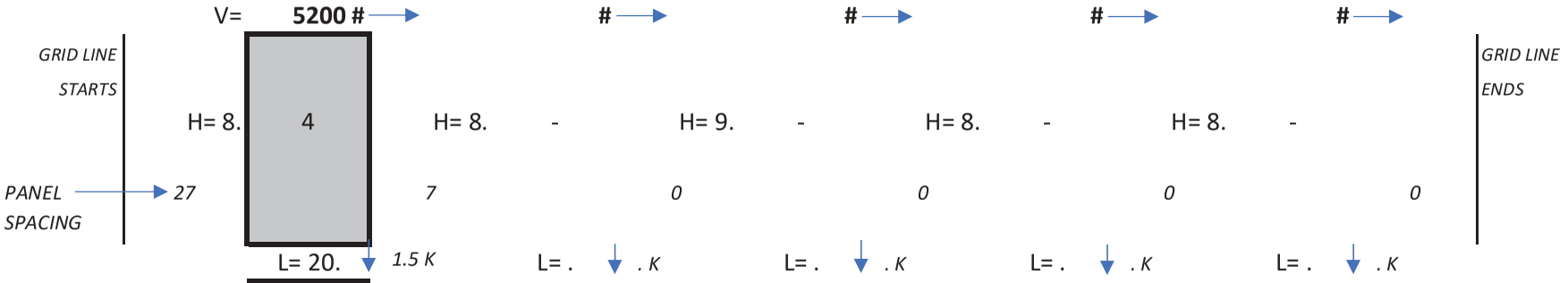
GRIDLINE LENGTH: 54.0

3781 # V-REQ'D

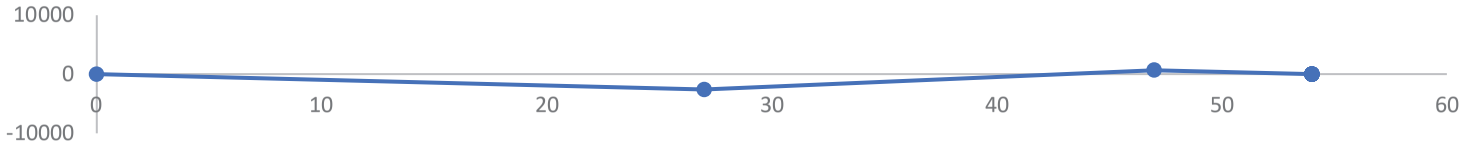
5200 # V-TOTAL

LOAD INPUTS:

GRIDLINE	LOAD	TYPE	%	TOTAL	NOTES
A	*3781*	*SEISMIC*	*100%*	*3781*	
-	*0*	*0*	*100%*	*0*	
-	*0*	*0*	*100%*	*0*	



PANEL	A
H/W RATIO	0.40
% CAPACITY	100%
SW LOAD	260
UNIT	PLF
LOAD CASE	D+0.7E
OVER TURNING	29120
RESISTING	0
HOLD DOWN -1	HDU2
LOAD	3100
HOLD DOWN-2	N/A
LOAD	
CHECK	OK



MAX FORCE AT TOP PLATE IS **2600 #** MSTA 36 REQ'D AT TOP PLATE SPLICE **2050 # >** 2600 # ERROR!

SHEAR WALL PANEL ANALYSIS (ASD)

9/22/2021 11:25 PM

DELTA/ REV: ***1ST PLAN CHECK*** PR. NAME: ***ADD & REFRAME*** CHECK: ***OK***

DES: ***ADU ADDITION & ROOF RE-FRAM*** PR. #: ***RMA-74-ADU***

GRID LINE	B

GRIDLINE LENGTH: 54.0

4196 # V-REQ'D

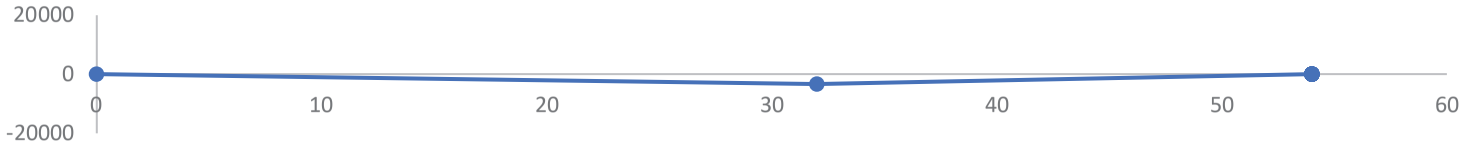
5720 # V-TOTAL

LOAD INPUTS:

GRIDLINE	LOAD	TYPE	%	TOTAL	NOTES
B	*4196*	*SEISMIC*	*100%*	*4196*	
-	*0*	*0*	*100%*	*0*	
-	*0*	*0*	*100%*	*0*	

V=	**5720 #** →		**#** →		**#** →		**#** →		**#** →
GRID LINE STARTS									*GRID LINE ENDS*
H= 8.	4	H= 8.	-	H= 9.	-	H= 8.	-	H= 8.	-
PANEL SPACING → *32*		*0*		*0*		*0*		*0*	*0*
L= 22.	*1.5 K*	L= .	*. K*	L= .	*. K*	L= .	*. K*	L= .	*. K*

PANEL	A
H/W RATIO	0.36
% CAPACITY	100%
SW LOAD	260
UNIT	PLF
LOAD CASE	D+0.7E
OVER TURNING	32032
RESISTING	0
HOLD DOWN -1	HDU2
LOAD	3100
HOLD DOWN-2	N/A
LOAD	
CHECK	OK



MAX FORCE AT TOP PLATE IS **3390 #** MSTA 36 REQ'D AT TOP PLATE SPLICE **2050 # >** 3390 # ERROR!