

**JOB NUMBER : 2021-5000**

VALID ONLY WITH ORIGINAL SIGNATURE

**STRUCTURAL CALCULATIONS FOR :**

[Redacted]

**FOR THE STRUCTURE AT:**

[Redacted]

**DESIGN PARAMETERS**

46.7371

**SCOPE:** THESE CALCULATIONS CHECK THE PROPOSED RESIDENCE FOR LATERAL LOADS: WIND AND SEISMIC ONLY

**REFERENCES:** 2019 C.B.C. 2019 C.R.C. AND 2018 I.B.C.

**SOILS:** SOILS VALUES PER GEOTECHNICAL REPORT BY HENRY JUSTINIANNO

**LATERAL LOADS:** WIND V(ULT) = 110 MPH. EXPOSURE C RISK CATEGORY II  
V(ASD) = 85 MPH.  
SEISMIC DESIGN CATEGORY D IMPORTANCE FACTOR 1  
LIGHT WEIGHT FRAMING R= 6.5  
( NO SEISMIC OR WIND RELATED SPECIAL INSPECTION PER 1705.11 EXCEPTION 3 )

**ASSUMPTIONS:** WEIGHTS OF MATERIALS ARE CONSERVATIVE BY ABOUT 10%  
INPUT TO COMPUTER ASSUMED ACCURATE TO ± 5%  
COMPUTER SOFTWARE IS ACCURATE TO FROM -0% TO +5% (CONSERVATIVE)

UPLIFT FORCES OF LESS THAN 240 LBS ARE ASSUMED TO BE RESISTED BY ANCHOR BOLTS, SILL NAILING, ADJACENT WALLS, ETC. WITHOUT REQUIRING A HOLDOWN.

**LIMITATIONS:** THESE CALCULATIONS HAVE BEEN PREPARED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE IN THE STATE OF CALIFORNIA AND NO OTHER WARRANTIES ARE MADE AS TO THE PROFESSIONAL ADVICE PROVIDED HEREIN.

A. & E. DESIGN SERVICES WILL ACCEPT NO RESPONSIBILITY FOR WORK PERFORMED BY OTHERS, WHICH HAS NOT BEEN CHECKED, STAMPED AND SIGNED BY US . IT IS THE RESPONSIBILITY OF THE ARCHITECT / DESIGNER TO INCORPORATE THE REQUIREMENTS OF THESE CALCULATIONS INTO THE CONSTRUCTION DOCUMENTS AND ACQUIRE THESE APPROVALS.

## WEIGHTS OF MATERIALS

	<u>MATERIAL</u>	<u>WEIGHT</u>	
<b>ROOF:</b>	COMPOSITION ROOF #1	3.1 psf.	ROOF SLOPE (F): <span style="float: right;">4:12 WORST CASE</span>
	2ND LAYER OF ROOFING	2.3 psf.	
	SOLAR PANELS	2.4 psf.	ROOF DEAD LOAD 12 psf.
	RAFTERS	1.8 psf.	ROOF LIVE LOAD 20 psf.
	DECKING 1/2 in.	1.6 psf.	( 20 psf. X (1.2-0.05 F) for 4 < F < 12 )
	MISCELLANEOUS	0.2 psf.	TOTAL (ROOF ONLY) <b>32 psf.</b>
	SLOPE INCREASE	0.6 psf.	
<b>CEILING:</b>	CEILING 1/2 in.	2.4 psf.	CEILING DEAD LOAD <b>5 psf.</b>
	CEILING JOISTS	1.1 psf.	CEILING LIVE LOAD 20 psf.
	INSULATION AND MISC.	1.5 psf.	(LIMITED STORAGE NON CONCURRENT) <u>E.S.</u>
			TOTAL DEAD LOAD <b>17 psf.</b> 7%
		<b>TOTAL LOAD 37 psf.</b> 3%	
<b>FLOOR:</b>	JOISTS	3.3 psf.	
	DECKING 3/4 in.	2.4 psf.	
	CEILING 1/2 in.	2.4 psf.	
	FLOOR COVERING	3.0 psf.	FLOOR DEAD LOAD 14 psf. 19%
	INSULATION AND MISC.	2.9 psf.	FLOOR LIVE LOAD 40 psf.
			<b>TOTAL LOAD 54 psf.</b> 5%
<b>EXT. WALLS: (2ND FLOOR)</b>	STUDS 2 X 6 @ 16	1.6 psf.	
	STUCCO 7/8 in.	9.0 psf.	
	PLYWOOD 1/2 in.	1.6 psf.	
	GYPSUM 1) 1/2 in.	2.4 psf.	
	INSULATION AND MISC.	1.4 psf.	<b>TOTAL LOAD 16 psf.</b> 7%
<b>EXT. WALLS: WITH STONE VENEER (1ST FLOOR)</b>	STUDS 2 X 6 @ 16	1.8 psf.	
	STUCCO 7/8 in.	9.3 psf.	
	VENEER 1 1/2 in.	15.4 psf.	
	PLYWOOD 1/2 in.	1.8 psf.	
	GYPSUM 1) 1/2 in.	2.3 psf.	
	INSULATION AND MISC.	1.8 psf.	<b>TOTAL LOAD 32 psf.</b> 5%
<b>INT. WALLS:</b>	STUDS 2 X 4 @ 16	1.0 psf.	
	GYPSUM 2) 1/2 in.	4.8 psf.	
	PLYWOOD 1/2 in.	1.6 psf.	
	MISCELLANEOUS	0.2 psf.	<b>TOTAL LOAD 8 psf.</b> 2%

**GENERAL NOTES**

- 1) ALL WORK SHALL COMPLY WITH THE 2018 I.R.C. AS AMENDED BY THE 2019 C.R.C. & C.B.C. THE 2018 U.M.C. AS AMENDED BY THE 2019 C.M.C. THE 2018 U.P.C. AS AMENDED BY THE 2019 C.P.C. THE 2017 N.E.C. AS AMENDED BY THE 2019 C.E.C. THE 2018 INTERNATIONAL FIRE CODE AS AMENDED BY THE 2019 CALIFORNIA FIRE CODE, THE 2019 CALIFORNIA ENERGY CODE, THE 2019 GREEN BUILDING STANDARDS AND ALL APPLICABLE STATE COUNTY AND LOCAL CODES AND STANDARDS.
- 2) CONTRACTORS SHALL VERIFY ALL DIMENSIONS PRIOR TO THE FABRICATION OF ANY WORK. DO NOT SCALE PLANS. ANY ERRORS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER IMMEDIATELY.
- 3) IN THE EVENT THAT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT SHOWN, THEN THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS WHICH ARE SHOWN OR CALLED FOR.
- 4) CONTRACTOR SHALL INSPECT ALL EXISTING CONDITIONS WHICH EFFECT THE WORK AND NOTIFY THE ENGINEER OF ANY CONDITIONS WHICH CONFLICT WITH THE WORK TO BE DONE.
- 5) THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR THE CONDUCT OF THE WORK INCLUDING ALL METHODS, PROCEDURES, SITE SAFETY, TEMPORARY BRACING AND SHORING, SCHEDULING OF INSPECTIONS AND OBTAINING NEEDED PERMITS.
- 6) IN THE EVENT OF A CONFLICT BETWEEN CODES THE MORE STRINGENT SHALL GOVERN.
- 7) CONTRACTOR SHALL REVIEW ALL DOCUMENTS COMPLETELY BEFORE PROCEEDING WITH THE CONSTRUCTION.
- 8) ALL MANUFACTURED MATERIALS, COMPONENTS, FASTENERS AND ASSEMBLIES SHALL BE HANDLED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
- 9) PLANS CAN NOT BE MODIFIED BY ANYONE OTHER THAN THE DESIGNER AND LICENSED ENGINEER.
- 10) CONTRACTOR AND ALL SUBCONTRACTORS TO VERIFY THAT THEY ARE USING ONLY THE FINAL PERMITTED SET OF PLANS.

**MATERIALS:**

2 X RAFTERS AND JOISTS	DF #2	U.O.N.	
4 X & 6 X BEAMS AND POSTS	DF #1	U.O.N.	(UNDER FLOOR GIRDERS MAY BE DF #2)
TYPICAL HEADERS	DF #2	U.O.N.	
STUDS	STANDARD OR BETTER		
GLU-LAM BEAMS	24F	V4 STANDARD CAMBER FOR SIMPLE SPANS	V8 FOR CANTILEVERS
CONCRETE (no special inspection)	2500 PSI. 4" SLUMP 3/4" MAX AGGREGATE SIZE PER A.S.T.M.C33		
REBAR	MIX WITH A MAX. OF 7-1/2 GALLONS OF CLEAN WATER PER SACK OF CEMENT.		
CONNECTORS	#5 AND SMALLER GRADE 40, #6 AND LARGER GRADE 60 PER ASTM A615		
ANCHOR BOLTS	DEFORMED BARS PER ASTM A615		
MACHINE BOLTS	SIMPSON STRONG TIE OR EQUAL VALUES USED ARE FOR SINKER NAILS		
NAILS 2 X MEMBERS	ALL METALS EXPOSED TO THE WEATHER OR IN CONTACT WITH PRESSURE TREATED WOOD TO BE HOT DIP GALVANIZED. (5/8" ANCHOR BOLTS EXCEPTED)		
1 X MEMBERS	5/8" DIA X 12" BOLTS AT 48"oc. OR PER SHEARWALL SCHEDULE, AND 4" MIN. TO 12" MAX. FROM ENDS OF MUD SILL AND 1-3/4" TO 2-1/4". FROM EDGE. EMBED 7" INTO CONCRETE.		
PLYWOOD	BOLTS IN SHEARWALLS OR BRACED WALL LINES SHALL BE INSTALLED WITH SIMPSON BPS 5/8-3 PLATE WASHERS AND CUT WASHERS. (BP 5/8-3 OK WITHOUT CUT WASHER)		
SILLS & LEDGERS TO CONCRETE	GRADE 2 U.N.O. TIGHTEN HAND TIGHT PLUS ONE HALF TURN FOR WOOD CONNECTIONS		
	10d COMMON OR 16d SINKER NAILS U.O.N.		
	8d COMMON U.O.N.		
	8d COMMON OR DEFORMED SHANK BOX. U.O.N. FLOORS TO BE GLUED.		
	PRESSURE TREATED DOUGLAS FIR.		
	NAILS AND BOLTS LESS THAN 5/8" DIA. INTO P.T. TO BE GALVANIZED.		

**NAILING SHALL CONFORM TO THE FOLLOWING AND C.R.C. TABLE R602.3(1) UNLESS A GREATER NUMBER OF NAILS IS CALLED FOR ON THE DRAWINGS.**

<u>JOISTS OR RAFTERS</u>	TO BEARING (SILL OR GIRDER)	3)-8d TOENAILS EACH END
	TO PARALLEL MEMBERS	16d AT 12"
<u>SOLE PLATE</u>	TO JOIST OR BLOCKING	16d AT 16" OR PER SHEARWALL SCHEDULE
<u>STUDS</u>	TO BEARING	2)-16d END NAIL
	TO SOLE PLATE	2)-16d END NAIL (20d @ 3x plate) or 4)-8d TOENAILS
	TO PARALLEL STUDS	16d AT 24"
<u>4 X 4 AND LARGER</u>	TO CONTINUOUS HEADER	4) 8d TOENAILS
<u>TOP PLATE</u>	TO BEARING	4) 8d TOENAILS
	TO SECOND TOP PLATE	16d AT 16"
	LAP SPLICE	10) 16d
	AT INTERSECTION	2) 16d
<u>BLOCKING BETWEEN JOISTS</u>	TO TOP PLATES	3) 8d TOENAILS
	TO JOISTS	3) 8d TOENAILS EACH END
<u>RIM JOISTS</u>	TO TOP PLATES OR MUD SILL	8d AT 6"
<u>CEILING JOISTS</u>	TO TOP PLATES	3) 8d TOENAILS
	LAP AT PARTITION	3) 16d
	TO PARALLEL RAFTERS	3) 16d
<u>3/8", 1/2" AND 3/4" PLYWOOD</u>	TO FRAMING	8d COMMON OR DEFORMED SHANK (MIN.)
<u>1-1/8" PLYWOOD</u>	TO FRAMING	10d COMMON OR 16d SINKER

A COPY OF THIS PAGE SHOULD BE ATTACHED TO THE PLANS

## FRAMING NOTES

### TYPICAL

- 1) ALL UNTREATED WOOD TO BE 1/2" MINIMUM FROM CONCRETE OR MASONRY. ( RAISE PLYWOOD 1/2" )
- 2) WHEREVER THE WOOD TENDS TO SPLIT, HOLES SHALL BE PREDRILLED. SPLIT MEMBERS SHALL BE REPLACED.
- 3) PROVIDE POSTS THE FULL WIDTH OF BEAMS AND PROVIDE SOLID POSTS AND/OR BLOCKING TO FOUNDATION.
- 4) WHERE TOP PLATES OR SOLE PLATE ARE CUT FOR PLUMBING, PROVIDE A 1-1/2" WIDE X .058" STRAP EACH SIDE W/ 12)16d
- 5) PROVIDE DOUBLE JOISTS UNDER PARALLEL PARTITIONS EVEN IF NOT SHOWN ON PLANS.

### PLYWOOD

- 6) CENTER PLYWOOD JOINTS OVER FRAMING MEMBERS WITH 1/16"± SPACE BETWEEN SHEETS.
- 7) DRIVE NAILS FLUSH WITH PLYWOOD SURFACE. PROVIDE 3/8" MIN. EDGE DISTANCE FOR NAILS AT PLYWOOD & FRAMING MEMBERS.
- 8) EDGE NAIL PLYWOOD TO COLLECTORS WITH 2) ROWS OF 8d AT 6" WHERE TWO SHEETS MEET. 1) ROW OF 8d AT 4" IN FIELD
- 9) LAY PLYWOOD SHEETS WITH FACE GRAIN PERPENDICULAR TO RAFTERS AND JOISTS WITH 24" MIN. SHEET SIZE.
- 10) ROOF DIAPHRAGM TO BE 1/2" CDX PLYWOOD WITH 8d AT 6" EDGE & 12" FIELD (UNBLOCKED) U.O.N. (1/2" O.S.B. OK)
- 11) FLOOR DIAPHRAGMS TO BE 3/4" O.S.B. GLUED & NAILED W/ 8d AT 6" EDGE & 12" FIELD (UNBLOCKED) U.O.N. (PLYWOOD OK)

### BLOCKING

- 12) PROVIDE SOLID BLOCKING BETWEEN JOISTS UNDER PARTITION WALLS, OVER BEARING POINTS & FIRE BLOCKING PER CBC. 717.2
- 13) SOLID BLOCK AT 8' o.c. BETWEEN 2 X 12 FLOOR JOISTS WITH SPANS OVER 10'. (WHERE CEILINGS DO NOT BRACE JOISTS.)

### TRUSSES

- 14) WHEN ROOF TRUSSES SPAN OVER 30'-0", PROVIDE A STUD DIRECTLY BELOW THE TRUSS. ADD STUDS AS NEEDED.
- 15) PROVIDE 1/4" GAP BETWEEN TRUSSES AND NON BEARING PARTITIONS AND CONNECT WITH SIMPSON STC PLATE.
- 16) **TRUSS CALCULATIONS SHALL BE PROVIDED BY MANUFACTURER, REVIEWED BY THE ENGINEER, AND SUBMITTED TO THE BUILDING DEPT., FOR APPROVAL, PRIOR TO MANUFACTURE AND INSTALLATION. SEE "SUMMARY" FOR ROOF LOADS**

### GLU LAMS

- 17) STANDARD CAMBER FOR GLU-LAMS IS A 3500 FT. MIN. RADIUS. ( =1/8" @ 16' SPAN, =3/16" @ 20' SPAN )
- 18) AITC. CERTIFICATES FOR GLU-LAMS SHALL BE PROVIDED BY MANUFACTURER AND SUBMITTED TO THE BUILDING DEPT., FOR APPROVAL, PRIOR TO INSTALLATION.

### ATTICS

- 19) ATTICS TO HAVE 22" X 30" ACCESS TO ALL AREAS OVER 30" HIGH. VENTS TO BE PROVIDED EQUAL TO THE AREA / 300 WITH HALF THE VENTS AT THE EAVES AND HALF THE VENTS NO MORE THAN 3' BELOW THE RIDGE.

### GENERAL

- 20) NOT ALL PORTIONS OF ANY GIVEN STRUCTURE ARE REQUIRED TO BE ENGINEERED. ANY PORTION NOT DETAILED ON THE PLANS SHOULD BE CONSTRUCTED PER THE CONVENTIONAL LIGHT FRAME CONSTRUCTION PROVISIONS OF 2019 C.R.C.
- 21) LUMBER TO HAVE 19% MAX. MOISTURE CONTENT AT TIME OF INSTALLATION.
- 22) PREFABRICATED PRODUCTS SUCH AS "I" JOISTS, TRUSSES GLU-LAMS AND PARALLAMS CAN NOT BE CUT, NOTCHED, DRILLED, SPLICED OR OTHERWISE ALTERED WITH OUT THE APPROVAL OF THE PROJECT ENGINEER.

## FOUNDATION NOTES

### CONCRETE

- 1) DO NOT LOAD CONCRETE UNTIL IT HAS SUFFICIENTLY CURED TO CARRY THE LOADS. (TYPICALLY 7 DAYS.)
- 2) ALL CONCRETE TO CONFORM WITH ACI 318-14
- 3) CONCRETE SLABS TO BE CURED BY BEING KEPT MOIST FOR SEVEN DAYS AFTER POURING OR BY SPRAYING WITH AN APPROVED CURING COMPOUND. ALL SLABS TO HAVE A MINIMUM OF #3 BARS AT 18" o.c. BOTH WAYS.
- 4) CONCRETE TO BE VIBRATED OR RODDED DURING PLACEMENT TO FILL ALL VOIDS.
- 5) SPECIAL INSPECTION REQUIRED FOR PIER HOLES PRIOR TO POUR.

### REBAR

- 6) REBAR TO BE CLEAN OF MUD AND OIL AND SUPPORTED SO AS TO STAY IN POSITION DURING THE POUR. DO NOT WELD REBAR.
- 7) PROVIDE 3" CONCRETE COVER FROM REBAR TO SOIL, 2" AT BOTTOM OF SLABS ON GRADE. 1-1/2" COVER TO AIR.

### GENERAL

- 8) PROVIDE EXPANSION STRIPS AT EDGES OF SLABS, U.N.O. AND KNIFE CUT CONTRACTION JOINTS AT APPROXIMATELY 10'-0" o.c. SOIL UNDER SLABS TO BE MOISTURE CONDITIONED PRIOR TO POUR TO MINIMIZE SWELL POTENTIAL.
- 9) FOOTINGS TO BEAR ON UNDISTURBED MATERIAL REGARDLESS OF ELEVATIONS SHOWN. ALL TRENCHES TO BE CLEAN, LEVEL AND TAMPED DOWN. TOP OF FOUNDATION TO BE LEVEL AND STEPPED AS NEEDED. 10:1 MAX SLOPE UNDER FOOTINGS
- 10) PROVIDE 8" FROM WOOD TO EARTH AND SLOPE GRADE AWAY FROM STRUCTURE AT 5 % WITHIN 10' OR TO SUITABLE DRAIN.

### BOLTS

- 11) ANCHOR BOLTS TO BE 5/8" DIA. AT 48" o.c. WITH 2) MIN. PER PIECE, AND 4" TO 12" FROM THE ENDS OF ALL SILL PLATES, UNLESS A GREATER NUMBER OF BOLTS ARE CALLED FOR IN THE SHEARWALL SCHEDULE. (W/ BPS 5/8-3 PLATE WASHERS & CUT WASHERS AT SHEARWALLS OR BRACED WALL LINES.)  
LOCATE PLATE WASHERS WITHIN 1/2" OF EDGE OF MUD SILL TAKING PLYWOOD NAILING.

### CRAWL SPACE

- 12) PROVIDE 18" MIN. CLEAR FROM GROUND TO FLOOR JOISTS AND 12" MIN. CLEAR TO GIRDERS. ALL UNDER FLOOR AREAS TO HAVE AN 18" X 24" MINIMUM ACCESS.
- 13) UNDER FLOOR SHALL BE VENTILATED BY OPENINGS IN THE EXTERIOR FOUNDATION WALLS. OPENINGS SHALL HAVE A MINIMUM AREA OF 1 SQ. FT FOR EACH 150 SQ. FT. OF UNDER FLOOR AREA AND BE COVERED WITH CORROSION RESISTANT WIRE MESH WITH OPENINGS OF 1/4" MAX. PER C.B.C. LOCATE VENTS NEAR CORNERS AND ON AT LEAST 2 OPPOSITE SIDES OF CRAWL AREA. DO NOT CUT HOLES IN GRADE BEAMS UNLESS APPROVED BY THE ENGINEER.

### MUD SILLS

- 14) MUD SILLS TO BE PRESSURE TREATED DOUGLAS FIR. SPRAY ALL CUTS AND HOLES WITH COPPER GREEN TREATMENT OR EQUAL.
- 15) NAILS & BOLTS INTO PRESSURE TREATED WOOD TO BE GALVANIZED. 5/8" DIA BOLTS AND LARGER DO NOT NEED TO BE GALV.
- 16) PIPES THROUGH CONCRETE TO BE SLEEVED OR WRAPPED. NO ALUMINUM SHALL BE IN CONTACT WITH CONCRETE.
- 17) WOOD TO BE 8" MIN. ABOVE GRADE. STUCCO SCREED TO BE 4" MIN. ABOVE GRADE.
- 18) PLYWOOD TO BE 1/2" MIN. FROM CONCRETE

# LATERAL LOAD CALCULATIONS

11.730576

## WIND LOAD

2019 C.B.C. ASCE 7-16

### Basic Parameters

Risk Category	II	Table 1.5-1	MAXIMUM ROOF HEIGHT =	23.7 ft.
Basic Wind Speed, V	110 mph	Figure 26.5-1A	NUMBER OF FLOORS =	2
Wind Directionality Factor, K <sub>d</sub>	0.85	Table 26.6-1	ROOF SLOPE =	18.4 degrees
Exposure Category	C	Section 26.7		
Topographic Factor, K <sub>zt</sub>	1.00	Section 26.8	Internal Pressure Coefficient, GC <sub>pi</sub>	+/- 0.18 Table 26.11-1
Gust Effect Factor, G or G <sub>f</sub>	0.836	Section 26.9	Terrain Exposure Constant, a	9.5 Table 26.9-1
Enclosure Classification	Enclosed	Section 26.10	Terrain Exposure Constant, z <sub>g</sub>	900 ft Table 26.9-1

### LRFD WIND PRESSURES

<b>WALL</b>	26.8 psf.	<b>ROOF</b>	20.3 psf.
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"load & resistance factor design"

MINIMUM OF 16 PSF AND 8 PSF RESPECTIVELY

### ASD WIND PRESSURES

<b>WALL</b>	16.1 psf.	<b>ROOF</b>	12.2 psf.
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"allowable stress design"

ASD FACTOR = 0.6 FOR USE WITH WOOD SHEARWALLS

## SEISMIC COEFFICIENT

2019 C.B.C. ASCE 7-16

DESIGN CATEGORY D

2019 CBC. STATIC FORCE PROCEDURE

IRREGULAR STRUCTURE

LATITUDE = 37.63282

LONGITUDE = -121.86186

SITE CLASS C CONSERVATIVE

FROM U.S.G.S. WEB SITE	S <sub>s</sub> = 1.98	F <sub>a</sub> = 1.20	S <sub>ms</sub> = 2.38	S <sub>ds</sub> = 1.58
	S <sub>1</sub> = 0.732	F <sub>v</sub> = 1.70	S <sub>m1</sub> = 1.24	S <sub>d1</sub> = 0.83

I = 1

R = 6.5

C<sub>s</sub> = S<sub>ds</sub> x I / R = 0.244

C<sub>s</sub> NOT LESS THAN 0.06

C<sub>s</sub> NEED NOT EXCEED 0.594

p = 1.3

NON REDUNDANT

F = 1

REDISTRIBUTION REQUIRED SEE BELOW

2 STORY

### LRFD COEFFICIENT

<b>Q<sub>e</sub> = p F C<sub>s</sub> = 0.317</b>	x W
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"load & resistance factor design"

### ASD COEFFICIENT

<b>.7 Q<sub>e</sub> = 0.222</b>	x W
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"allowable stress design"

ASD FACTOR = 0.7 FOR USE WITH WOOD SHEARWALLS

CT = 0.02

x = 0.75

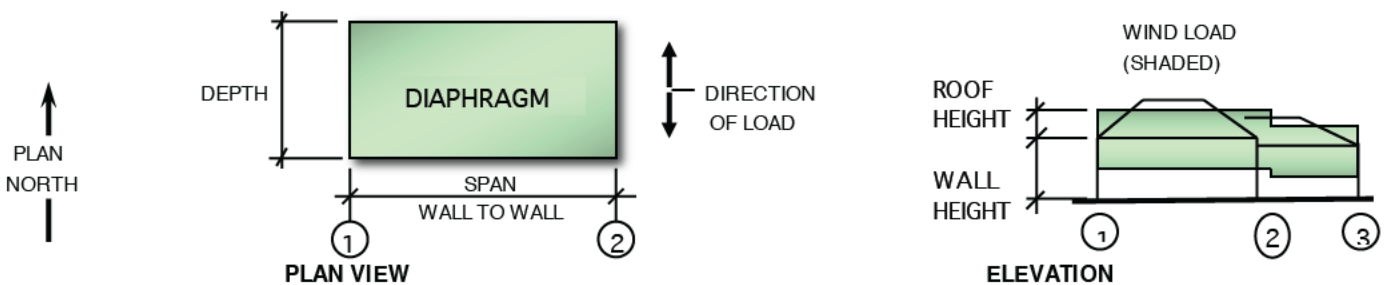
H = 23.7

t = 0.215

## WEIGHTS OF MATERIALS USED IN SEISMIC CALCS.

ROOF DEAD LOAD (WR)	17 psf.	MISC. DEAD LOAD AT ROOF (eaves, interior walls, etc.) (MISC-R)	80 plf.
FLOOR DEAD LOAD (WF)	14 psf.	MISC. DEAD LOAD AT FLOOR (interior walls, etc.) (MISC-F)	80 plf.
EXTERIOR WALL DEAD LOAD (WW)	16 psf.		
INTERIOR WALL DEAD LOAD	8 psf.	APPROX. 10% FACTOR OF SAFETY INCLUDED IN LOADS	

## EXPLANATION OF PAGE L2



### SEISMIC LOADS

ROOF LEVEL	W <sub>s</sub> (NORTH/SOUTH) = [(DEPTH*WR) + (HEIGHT * WW) + MISC-R] * COEF.
	(ROOF) (WALL) (MISC.)
FLOOR LEVEL	W <sub>s</sub> (NORTH/SOUTH) = [(DEPTH*WF) + (HEIGHT*2*WW) + MISC-F] * COEF.
	(FLOOR) (WALL) (MISC.)

("MISC." INCLUDES INTERIOR WALLS, EAVES, FIXTURES ETC.)

### WIND LOAD

ROOF LEVEL	WALL HEIGHT / 2 * WALL WIND PRESSURE + ROOF HEIGHT * APPROPRIATE ROOF WIND PRESSURE
FLOOR LEVEL	(LOWER WALL HEIGHT / 2 + UPPER WALL HEIGHT / 2 + 1') * WIND PRESSURE

<b>BUILDING DEFINITION TABLE</b>									
2ND LEVEL	SPAN WALL TO WALL	DEPTH OF DIAPH. (LOAD)	DEPTH OF DIAPH. (STRESS)	WEIGHT OF DIAPH.	PERP. WALL WEIGHT	WALL HEIGHT	GABLE HEIGHT (VERTICAL)	ROOF HEIGHT (SLOPED)	
<b>NORTH / SOUTH</b>									
3 TO 5	24 ft.	32 ft.	30 ft.	17 psf.	16 psf.	9 ft.		4 ft.	
5 TO 6	16 ft.	32 ft.	32 ft.	17 psf.	16 psf.	10 ft.		4 ft.	
6 TO 8	35 ft.	47 ft.	18 ft.	17 psf.	16 psf.	10 ft.		4 ft.	
<b>EAST / WEST</b>									
A TO B	15 ft.	64 ft.	64 ft.	15 psf.	16 psf.	10 ft.		4 ft.	
B TO C	32 ft.	74 ft.	70 ft.	17 psf.	16 psf.	10 ft.		5 ft.	
1ST LEVEL	SPAN WALL TO WALL	DEPTH OF DIAPH. (LOAD)	DEPTH OF DIAPH. (STRESS)	WEIGHT OF DIAPH.	PERP. WALL WEIGHT	WALL HEIGHT	GABLE HEIGHT (VERTICAL)	ROOF HEIGHT (SLOPED)	
<b>NORTH / SOUTH</b>									
TO 1	2 ft.	12 ft.	12 ft.	17 psf.	24 psf.	10 ft.		2 ft.	
1 TO 2	22 ft.	32 ft.	32 ft.	17 psf.	24 psf.	10 ft.		5 ft.	
2 TO 3	9 ft.	32 ft.	32 ft.	17 psf.	24 psf.	10 ft.		5 ft.	
3 TO 4	6 ft.	44 ft.	33 ft.	14 psf.	24 psf.	10 ft.			
4 TO 5	15 ft.	44 ft.	33 ft.	14 psf.	24 psf.	10 ft.			
5 TO 6	16 ft.	41 ft.	33 ft.	14 psf.	24 psf.	10 ft.			
6 TO 7	6 ft.	26 ft.	17 ft.	14 psf.	24 psf.	10 ft.			
7 TO 8	29 ft.	41 ft.	17 ft.	14 psf.	24 psf.	10 ft.			
8 TO 9	10 ft.	46 ft.	15 ft.	17 psf.	16 psf.	10 ft.		3 ft.	
<b>EAST WEST</b>									
A TO B	15 ft.	64 ft.	64 ft.	14 psf.	16 psf.	10 ft.			
B TO C	32 ft.	76 ft.	76 ft.	14 psf.	16 psf.	10 ft.			
D TO E	32 ft.	34 ft.	34 ft.	17 psf.	24 psf.	10 ft.		5 ft.	

<b>LATERAL LOADS</b>								
2ND LEVEL	WIND LOAD ON WALL	WIND LOAD ON ROOF	TOTAL WIND LOAD	VERTICAL REDIST. V / Cv <sub>x</sub> V	DESIGN WIND LOAD	DESIGN SEISMIC LOAD		
<b>NORTH / SOUTH</b>								
3 TO 5	72 plf.	49 plf.	121 plf.	2 OF 2	1.122	137 plf.	199 plf.	
3 TO 5	80 plf.	61 plf.	141 plf.	2 OF 2	1.122	157 plf.	203 plf.	
5 TO 6	80 plf.	49 plf.	129 plf.	2 OF 2	1.122	145 plf.	203 plf.	
6 TO 8	80 plf.	49 plf.	129 plf.	2 OF 2	1.122	145 plf.	270 plf.	
6 TO 8	80 plf.	49 plf.	129 plf.	2 OF 2	1.122	145 plf.	270 plf.	
<b>EAST WEST</b>								
A TO B	80 plf.	49 plf.	129 plf.	2 OF 2	1.122	145 plf.	314 plf.	
B TO C	80 plf.	61 plf.	141 plf.	2 OF 2	1.122	157 plf.	391 plf.	
1ST LEVEL	WIND LOAD ON WALL	WIND LOAD ON ROOF	TOTAL WIND LOAD	VERTICAL REDIST. V / Cv <sub>x</sub> V	DESIGN WIND LOAD	DESIGN SEISMIC LOAD		
<b>NORTH / SOUTH</b>								
TO 1	80 plf.	24 plf.	105 plf.	1 OF 1	1.000	121 plf.	119 plf.	
1 TO 2	80 plf.	61 plf.	141 plf.	1 OF 1	1.000	157 plf.	199 plf.	
2 TO 3	80 plf.	61 plf.	141 plf.	1 OF 1	1.000	157 plf.	199 plf.	
3 TO 4	153 plf.		153 plf.	1 OF 2	0.792	169 plf.	210 plf.	
4 TO 5	161 plf.		161 plf.	1 OF 2	0.792	177 plf.	214 plf.	
5 TO 6	161 plf.		161 plf.	1 OF 2	0.792	177 plf.	206 plf.	
6 TO 7	161 plf.		161 plf.	1 OF 2	0.792	177 plf.	167 plf.	
7 TO 8	161 plf.		161 plf.	1 OF 2	0.792	177 plf.	206 plf.	
8 TO 9	80 plf.	37 plf.	117 plf.	1 OF 1	1.000	133 plf.	237 plf.	
<b>EAST WEST</b>								
A TO B	161 plf.		161 plf.	1 OF 2	0.792	177 plf.	239 plf.	
B TO C	161 plf.		161 plf.	1 OF 2	0.792	177 plf.	270 plf.	
C TO D	80 plf.		80 plf.	1 OF 1	1.000	96 plf.	91 plf.	
D TO E	80 plf.	61 plf.	141 plf.	1 OF 1	1.000	157 plf.	207 plf.	