

PART 2 OF 2

BUD19 3889 PCI

THESE ATTACHMENTS ARE PART OF THE APPROVED PLANS
DO NOT REMOVE THEM

PROJECT NO. CORCORAN RESIDENCE
FIRE DAMAGE RECONSTRUCTION

DATE: August 26, 2019

Client Name: GORCORANS
Address: 96 DORCHESTER
City/State/Zip: SANTA ROSA, CA

Reviewed for Code Compliance
County of Sonoma
PRMD
SEP 09 2019

RESILIENCY PERMIT CENTER

ENGINEERING CALCULATIONS

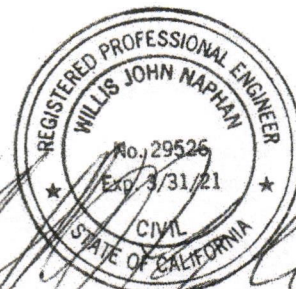
Resiliency Permit Center

PERMIT #

- 1) Seismic Coefficients (SEA of CA)
- 2) Seismic Coefficients (ASCE 7 Hazards Report)
- 3) Determine Cs for Seismic
- 4) Determine Wind Load (Seismic governs)
- 5) Building Weight
- 6) Distribution of Building Weight
- 7) Determine Seismic Loads
- 8) Distribute Seismic Loads

ENGINEER OF RECORD: WILLIS J. NAPHAN, P. E.
151 CALLAN AVE, STE 200
SAN LEANDRO, CA 94577-4536

PHONE & TEXT: (510) 867-5098
E-MAIL: naphanengr@aol.com



OFFICE

OK

109 3088 801

Part 2 of 2

DATE: August 26, 2019

THESE ATTACHMENTS ARE PART OF THE
PROJECT AND MUST REMAIN WITH THE
PROJECT FOR THE LIFE OF THE PROJECT
DO NOT REMOVE THEM

SEISMIC DESIGN
REVIEWED FOR COMPLIANCE

Client Name: GORDON
Address: 100 DORCHESTER
City: Santa Rosa, CA

RESILIENCE PERMIT CENTER
ENGINEERING CALCULATIONS

Resilience Permit Center

Seismic Coefficients (SIA of CA)

- 1) Determine Seismic Coefficients (ASCE 7 Hazard Report)
- 2) Determine Cs for Seismic
- 3) Determine Wind Load (Seismic governs)
- 4) Building Weight
- 5) Distribution of Building Weight
- 6) Determine Seismic Loads
- 7) Determine Seismic Loads

ENGINEER OF RECORD: WILLIS T. VILKIN, P.E.
151 GALLAN AVE STE 200
SAN LEANDRO, CA 94768-4536
PHONE & TEXT: (510) 807-5028
E-MAIL: wvilkin@earthquake.com



for compliance

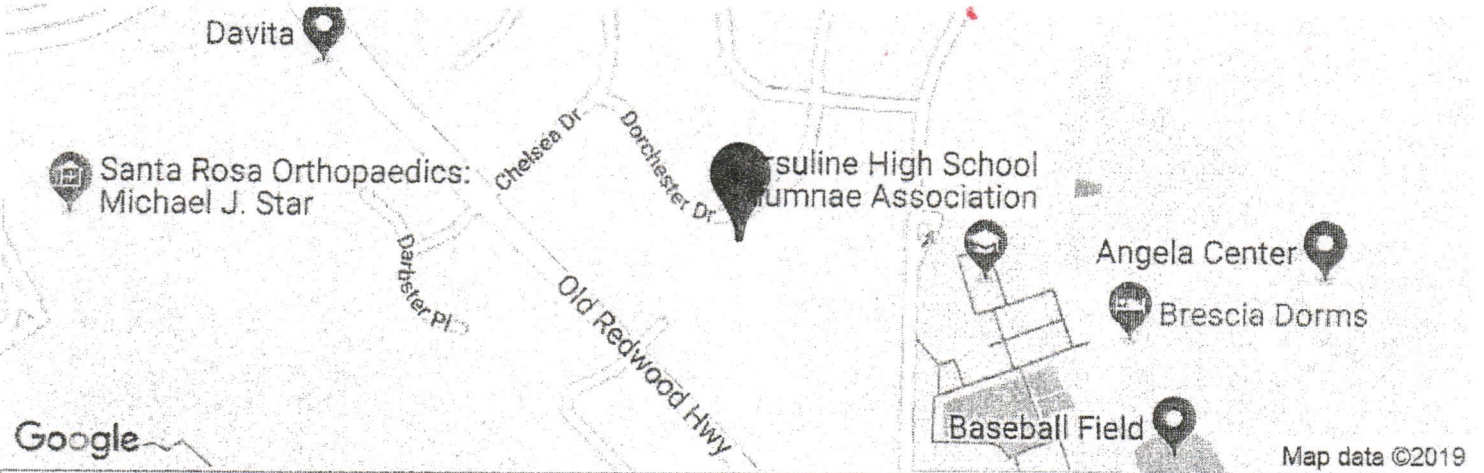
OFFICE

OK



96 Dorchester Dr, Santa Rosa
 96 Dorchester Dr, Santa Rosa, CA 95403, USA

Latitude, Longitude: 38.49494139999999, -122.74358999999998

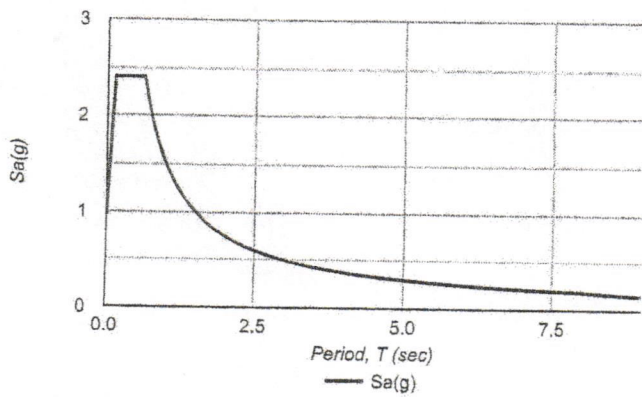


Date	8/1/2019, 4:15:35 PM
Design Code Reference Document	ASCE7-10
Risk Category	II
Site Class	D - Stiff Soil

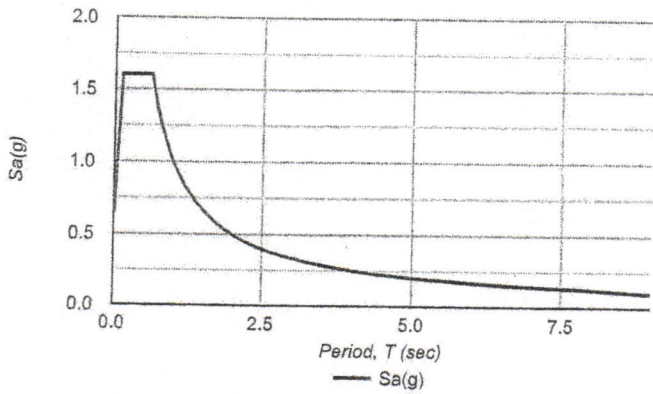
Type	Value	Description
S _S	2.405	MCE _R ground motion. (for 0.2 second period)
S ₁	1	MCE _R ground motion. (for 1.0s period)
S _{MS}	2.405	Site-modified spectral acceleration value
S _{M1}	1.5	Site-modified spectral acceleration value
S _{DS}	1.603	Numeric seismic design value at 0.2 second SA
S _{D1}	1	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2 second
F _v	1.5	Site amplification factor at 1.0 second
PGA	0.928	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.928	Site modified peak ground acceleration
T _L	8	Long-period transition period in seconds
S _{sRT}	2.88	Probabilistic risk-targeted ground motion. (0.2 second)
S _{sUH}	3.067	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
S _{sD}	2.405	Factored deterministic acceleration value. (0.2 second)
S _{1RT}	1.179	Probabilistic risk-targeted ground motion. (1.0 second)
S _{1UH}	1.281	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S _{1D}	1	Factored deterministic acceleration value. (1.0 second)
PGA _d	0.928	Factored deterministic acceleration value. (Peak Ground Acceleration)
C _{RS}	0.939	Mapped value of the risk coefficient at short periods
C _{R1}	0.92	Mapped value of the risk coefficient at a period of 1 s

MCER Response Spectrum



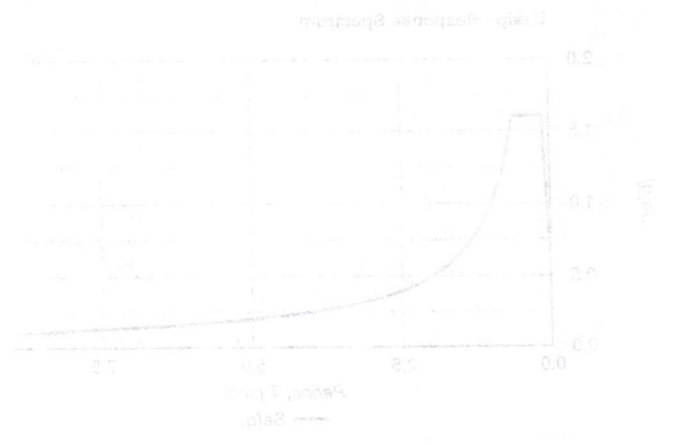
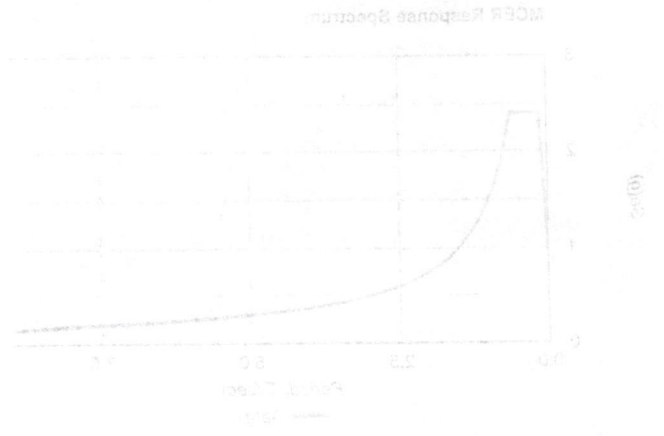
Design Response Spectrum



DISCLAIMER

While the information presented on this website is believed to be correct, SEAOC / OSHPD and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in this web application should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. SEAOC / OSHPD do not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the seismic data provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the search results of this website.

Handwritten red stamp: 10/1/19



DISCUSSION

The information presented in this report is based on the results of a study conducted by the U.S. Federal Copyright Office. The study was conducted to determine the effect of the Copyright Act of 1976 on the ability of authors to control their works. The study was conducted in the form of a series of public hearings and a final report. The final report is available in the public domain and is available for free download from the U.S. Copyright Office website. The study was conducted in the form of a series of public hearings and a final report. The final report is available in the public domain and is available for free download from the U.S. Copyright Office website.

Permit
 09 2016
 PMM
 ny of S
 for Co

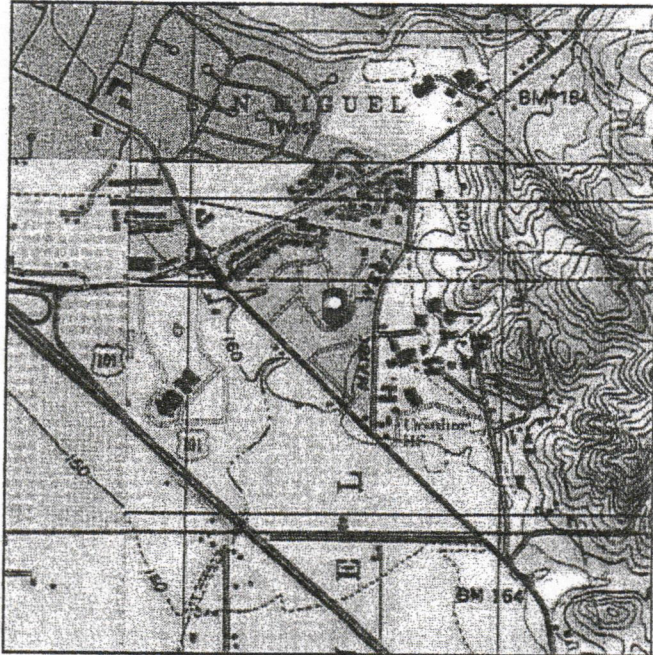


ASCE 7 Hazards Report

Address:
96 Dorchester Dr
Santa Rosa, California
95403

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 164.68 ft (NAVD 88)
Latitude: 38.495089
Longitude: -122.743621

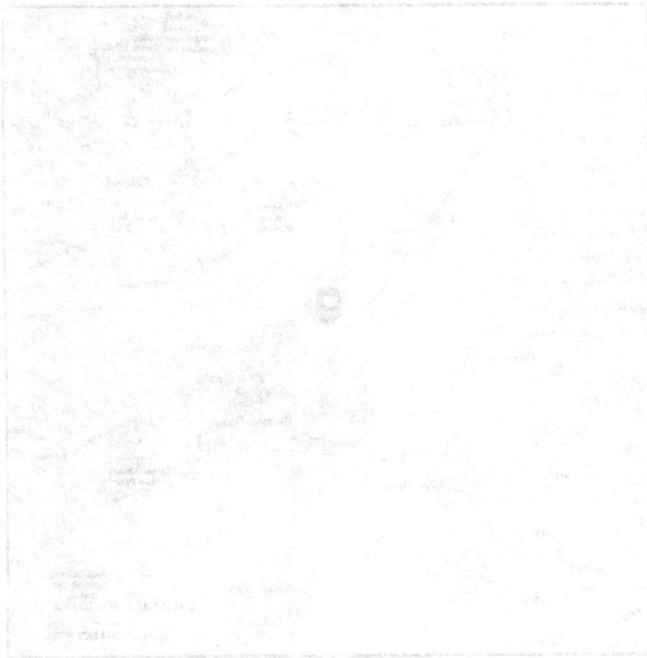




Address:
90 Dorchester Dr
Santa Rosa, California
95403

ASCE 7 Hazards Report

Standards: ASCE 7-10
Risk Category: II
Soil Class: S-1
Elevation: 164.88 ft (NAVD 88)
Latitude: 30.482089
Longitude: -122.743574



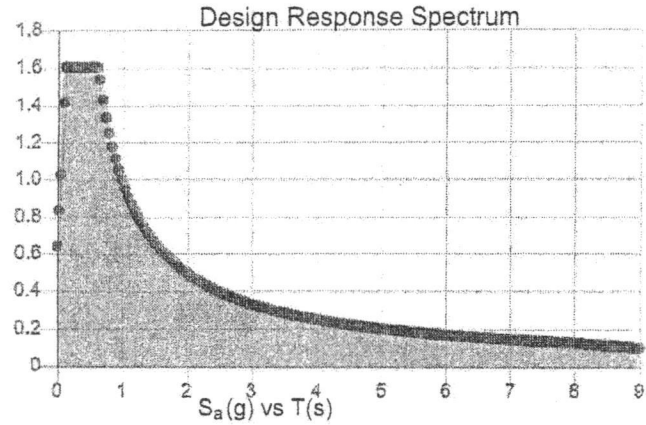
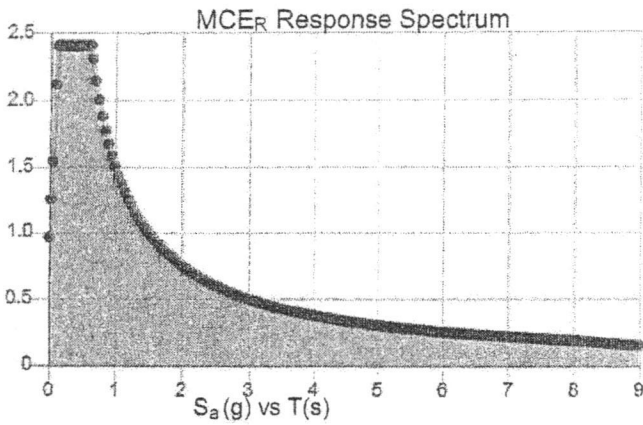
Reviewed
County
SEI
CV P

Site Soil Class: D - Stiff Soil

Results:

S_s :	2.405	S_{DS} :	1.604
S_1 :	1	S_{D1} :	1
F_a :	1	T_L :	8
F_v :	1.5	PGA :	0.928
S_{MS} :	2.405	PGA _M :	0.928
S_{M1} :	1.5	F_{PGA} :	1
		I_e :	1

Seismic Design Category E



Data Accessed: Thu Aug 01 2019
Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Seismic

$$V = C_s W$$

$$C_s = S_{DS} / (R/I)$$

$$R = 6.5$$

$$T_a = C_t h^x$$

$$C_t = 0.02$$

$$x = 0.75$$

$$h = 20$$

$$T_a = 0.02 (20)^{0.75} = 0.19$$

$$T_L = 8$$

$$T < T_L$$

$$C_s(\max) = S_{D1} / T (R/I)$$

$$= \sqrt{(0.19) 6.5 / 1}$$

$$= 0.80$$

$$C_s(\min) = 0.55 (S_1) / R(I) \quad S_1 = 1 > 0.6g$$

$$= 0.55 (1) / 6.5 = 0.08$$

$$S_{DS} = 1.603$$

$$\underline{C_s} = 1.603 / 6.5 = \underline{0.25}$$

$$0.80 > 0.25 > 0.08 \quad \text{ok}$$

$$\underline{C_s = 0.25}$$

Wind

- 1) Risk Category II
- 2) Basic Wind Speed V , $v_{ult} = 110$ mph
- 3) $K_d = 0.85$
- 4) Exposure Category C
- 5) Topographic Factor $K_{zT} = 1.0$ (Sec 26.8.2)
- 6) Enclosure Classification: II (Risk Category)
- 7) Internal Pressure Classification $R = 1.0$
- 8) $K_z = 0.90$
- 9) Determine Velocity Pressure

$$q = 0.00256 (K_z) (K_{zT}) K_d V^2$$

$$K_d = 0.85$$

$$K_{zT} = 1.0$$

$$K_z = 0.85$$

$$q = 0.00256 (0.85) (1) (0.85) (110)^2 = 22 \text{ lbs/ft}^2$$

For Leeward Pressure use

$$p_s = \lambda K_{zT} (p_{30})$$

$$\lambda = 1.29 \quad K_{zT} = 1.0$$

$$p_{30} = 22 \text{ lbs/ft}^2$$

$$p_s = 22 (1.29) (1.0) = 28 \text{ lbs/ft}^2$$

96 DORCHESTER
SANTA ROSA

FIRST FLOOR WALLS

exterior wall line	length	height	unit weight	total weight
1	39	9	7	2457
2	39	9	7	2457
3	32	10	7	2240
4	32	10	7	2240
5				0
6				0
7				0
8				0
A	19	9	7	1197
B	33	9	7	2079
C				0
D				0
E	52	10	7	3640
F				0
G				0
H				0

1st fl interior walls 89 9 6 4806

roof over first floor area weight
252 15 3780

SECOND FLOOR area weight
1186 10 11860

TOTAL 1ST FL 36756

SECOND FLOOR WALLS

exterior wall line	length	height	unit weight	total weight
1	29.5	9	7	1858.5
2	29.5	9	7	1858.5
3	29	8	7	1624
4	29	8	7	1624
5				0
6				0
7				0
8				0
A				0
B	52	9	7	3276
C				0
D				0
E	52	9	7	3276
F				0
G				0

96 DORCHESTER
SANTA ROSA

H

0

roof over second floor

area
1900

weight
15

28500

2nd fl interior walls

89

9

6

4806

TOTAL 2ND FL

46823

TOTAL BUILDING WEIGHT

83579

2nd story

Roof 1900 SF 15 lbs / SF 28500 lbs

Line 1 $9.5 (29.5) (15) = 4204$ lbs

Line 2 $[9.5 (29.5) + 15 (29)] 15 = 10729$ lbs

Line 3 $15.5 (29) 15 = 6743$ lbs

Line B $(6743 + 10729 + 4204) / 2 = 10838$ lbs

Line F 10838 lbs

Interior Walls (2nd Flr) 4806 lbs (Total)

Line 1 $4806 / 3 = 1602$ lbs

Line 2 1602 "

Line 3 1602 "

Line B $4806 / 2 = 2403$ lbs

Line F " 2403 "

Exterior Walls (2nd Flr)

Line 1 1859 lbs

Line 2 1859 lbs

Line 3 1624 "

Line 4 1624 "

Line B 3276 "

Line F 3276 "

2nd Floor Framing

Line 1	$9.5(29.5)(10) =$	2803 lbs
Line 2	$24(29.5)(10) =$	7080 lbs
Line 4	$15.5(29)(10) =$	4495 lbs

1st Floor

Line 1	$2457/2 =$	1229 lbs
Line 2	$2457/2 =$	1229 "
Line 3	$2240/2 =$	1120 "
Line 4	$2240/2 =$	1120 "
Line A	$1197/2$	599 "
Line B	$2079/2$	1040 "
Line F	$3640/2$	1820 "

Line A	1st F/L	599	150
Line B	2nd F/L	16517	4129
Line B	1st F/L	17557	4389
Line F	2nd F/L	16517	4129
Line F	1st F/L	18337	4584
Line 1	2nd F/L	10468	2617
Line 1	1st F/L	11697	2924
Line 2	2nd F/L	21270	5318
Line 2	1st F/L	22499	5625
Line 3	2nd F/L	9969	2492
Line 3	1st F/L	11089	2772
Line 4	2nd F/L	7239	1810
Line 4	1st F/L	7239	1810

5e15m/c (0.25W)

Line A	599	Line B	10838	Line F	10838
(2) 2803	1859	(2) 3276	2403	(2) 3276	2403
(1) 1229	1602	(1) 1040 - 1757	10838	(1) 1820 - 18337	16517
10468	4204				

Line 1	4204	Line 2	10729	Line 3	6743	Line 4	1624
(2) 2803	1859	(2) 7080	1859	(2) 2120	1602	(2) 9969	4495
(1) 1229	1602	(1) 1229	1602	(1) 22499	1624	(1) 11089	1120
10468	4204						7239

Walls

1 st	8, 9, 10	$6.0 + 7.5 + 5.0 = 18.5$	$2924 / 18.5 = 153 \text{ lb/4}$
"	11, 12	$2 + 2 = 4$	$5625 / 4 = 1406 \text{ ''}$
"	13	6	$2772 / 6 = 462 \text{ ''}$
"	14, 15	$8 + 8 = 16$	$1810 / 16 = 113 \text{ ''}$
"	1	6	$150 / 6 = 25 \text{ ''}$
"	2, 3	$7 + 2 = 9$	$4389 / 9 = 488 \text{ ''}$
"	4, 5, 6, 7	$2 + 2 + 2 + 2 = 8$	$4584 / 8 = 573 \text{ ''}$

RECEIVED

APR 13 2011

SPRINGFIELD COUNTY

MISSISSIPPI

[Faint, illegible handwritten notes and stamps, possibly including a date like 10/2/19]

Resili

RECEIVED

AUG 27 2019

RESILIENCY PERMIT CENTER