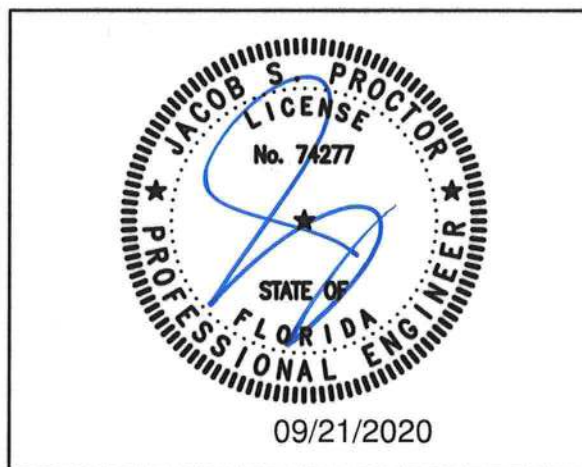




STRUCTURAL CALCULATIONS
for
SCOTT RESIDENCE

at
100 SOUTHWEST SIGNAL COURT
FORT WHITE, FL 32038
for
NATALIA SCOTT



BY: JACOB S. PROCTOR, P.E.
PRINCIPAL

FL FIRM LICENSE NUMBER: COA 26626

PROJECT #: U3942-001-201

DATE: September 18, 2020

DESIGNED BY JAB; CHECKED BY RTI

Note:

The calculations presented in this package are intended for a single use at the location indicated above, for the client listed above. These calculations shall not be reproduced, reused, "card filed", sold to a third party, or altered in any way without the written authorization of Vector Structural Engineering, LLC and Natalia Scott.

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PROJECT: Scott Residence

PROJECT NO.: U3942-001-201 **SUBJECT:** CRITERIA

Design Criteria:

General:

Code: Structural design is based upon the Florida Building Code, 2017 Edition (2015 IBC)
 Risk Category: II

Wind Criteria: ASCE7-10

Analysis Procedure: ASCE 7-10, Chapter 28 - Envelope Procedure - Part 2
 Basic Wind Speed - Ultimate (mph): 121 (3-sec gust)
 Wind Exposure: C

Seismic Criteria:

Analysis Procedure: ASCE 7-10, Equivalent Lateral Force Procedure
 Site Class: D(default)
 Seismic Importance Factor, I_E : 1.0
 Mapped Spectral Response Accelerations:
 $S_S = 0.078$ $S_1 = 0.047$
 $S_{DS} = 0.083$ $S_{D1} = 0.075$
 Seismic Design Category: B
 Seismic Force Resisting System: Wood Shearwalls
 Seismic Response Coefficient, C_s : 0.013
 Seismic Base Shear, V (k): 0.8

Live Loads:

Roof Live Load (psf): 20
 Floor Live Load (psf): 40

General Notes:

- The contractor shall verify dimensions, conditions and elevations before starting work. The engineer shall be notified immediately if any discrepancies are found.
- The typical notes and details shall apply in all cases unless specifically detailed elsewhere. Where no detail is shown, the construction shall be as shown for other similar work and as required by the building code.
- These calculations are limited to the structural members shown in these calculations only. The connection of the members shown in these calculations to any existing structure shall be by others.
- The contractor shall be responsible for compliance with local construction safety orders. Approval of shop drawings by the architect or structural engineer shall not be construed as accepting this responsibility.
- All structural framing members shall be adequately shored and braced during erection and until full lateral and vertical support is provided by adjoining members.

Wood Construction:

- All dimensional lumber shall be Spruce Pine Fir #2 or equal
- All wood timbers shall be Spruce Pine Fir #2 5X And Larger Or Equal
- Wood construction code checks are per the National Design Specification for Wood Construction (NDS) and Standard for Design of Timber Frame Structures (TFEC 1)

Foundation / Concrete:

- All concrete mixing, placement, forming, and reinforcing installation shall be performed in accordance with the requirements of "Building Code Requirements for Reinforced Concrete", ACI 318, latest applicable edition.
- Foundation concrete shall have a minimum compressive strength of 2500 psi at 28 days.
- Cement for all concrete shall be Type I or II with a minimum of 6% entrained air. Maximum aggregate size shall be 3/4".
- Reinforcing steel shall be per ASTM A615 Gr. 60, U.N.O.
- Foundation design is based upon presumptive soil capacities. Vector Structural Engineering, LLC strongly recommends independent soils testing be performed by a licensed geotechnical engineer to verify soil capacities, slope stability, and any other related soil parameters.



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PROJECT: Scott Residence

JOB NO.: U3942-001-201

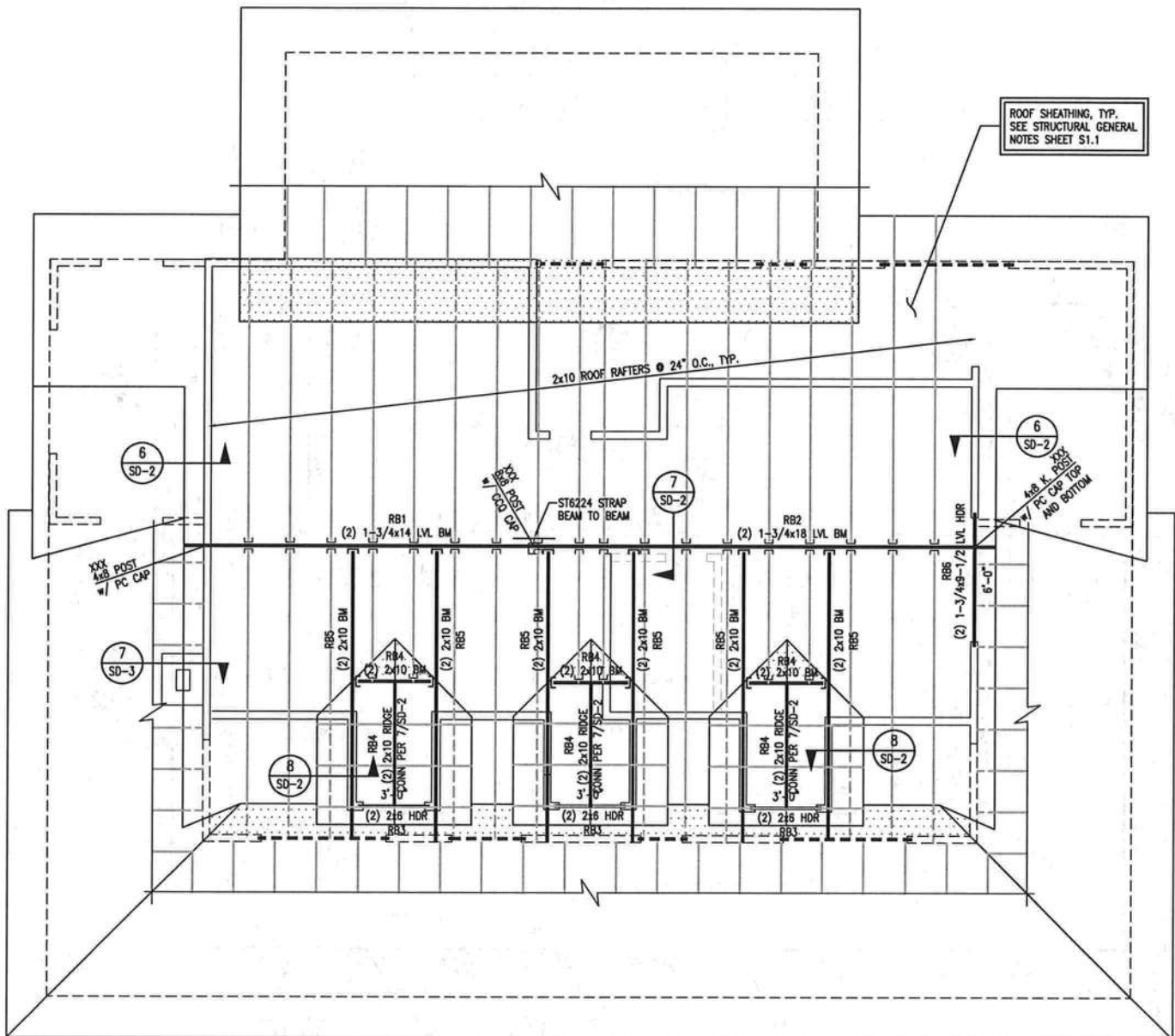
SUBJECT: GRAVITY LOADS

		Increase due to pitch	Original loading
ROOF			
ROOF PITCH/12		12	
ASPHALT SHINGLES		5.66	1.41 4.00
1/2" PLYWOOD		2.12	1.41 1.50
FRAMING		3.00	
INSULATION		2.00	
1/2" GYPSUM CLG.		2.20	
M, E & MISC		2.30	
OTHER		0.72	
	DL	18.00	
	LL	20.00	
	SNOW	0.00	
SNOW INCLUDED IN LATERAL		0.0	
2ND FLOOR (WHERE OCCURS)			
FLOOR COVERING		7.00	
3/4" T&G PLYWOOD		2.30	
MFG TRUSSES / FRAMING		2.00	
INSULATION		1.00	
1/2" GYPSUM CEILING		2.20	
PARTITION		2.00	
M, E & MISC.		1.50	
OTHER		0.00	
	DL	18.00	
	LL	40.00	
EXTERIOR WALLS			
STUCCO/SIDING		3.50	
2x4 FRAMING W/3 PLATES		1.30	
INSULATION		1.00	
1/2" GYPSUM		2.20	
1/2" PLYWOOD		1.50	
OTHER		0.50	
	DL	10.00	
OVERFILL			
ASPHALT SHINGLES		4.00	
1/2" PLYWOOD		1.50	
RAFTERS & MISC		3.50	
OTHER		0.00	
	DL	9.00	
	LL	20.00	

TYPICAL ROOF OVERBUILD MAX SPAN TABLE

Grade	Size	Spacing (ft)	L _{max} (ft)
DFL#2	2X4	2	6.30
DFL#2	2X6	2	9.90
DFL#2	2X8	2	13.00
DFL#2	2X10	2	16.10

C _r	C _D	C _{F,V}	M _{allow} (ft-lb)	V _{allow} (lb)	Ctrl'g factor
1.15	1.25	1.50	482	382	TL def
1.15	1.25	1.30	1030	601	TL def
1.15	1.25	1.20	1653	792	TL def
1.15	1.25	1.10	2466	1011	Moment



ROOF FRAMING PLAN

N.T.S.



N.T.S.

N.T.S.

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SUBJECT: BEAMS

Abbrev	GRADES		F_{max} (psi)	F_{ox} (psi)	E_m (psi)	g (lb/ft ³)
SPP#2	Structon Pine Fir #2		875	135	1400000	26.2
SPP#2	Structon Pine Fir #2 Sx and Lb		850	165	1200000	34.3
SPP#2	Structon Pine Fir #2 Sx and Ln			165	1200000	34.3
24F-V4	Claun Laminated Timber 24F-		2,400	285	1800000	39.9
24F-V4	Claun Laminated Timber 24F-		2,400	285	1800000	39.9
LVA (1.9)	MICROCLAM LVA (1.9E)		2,000	285	1600000	41.8
LVA (1.9)	MICROCLAM LVA (1.9E)		2,000	285	2000000	41.8
LVA (2.0)	VERASTRAN L (2.0E)		2,800	285	2000000	41.8
LST	VERASTRAN LST (1.3E)		1,700	400	1300000	41.8
PSL	PARALLAM PSL (2E)		2,800	280	2000000	41.8
STL#6	GRADE 36 STEEL		21,500	14,500	29,000,000	450
STL#6	GRADE 46 STEEL		27,700	16,500	29,000,000	450
STL#50	GRADE 50 STEEL		30,000	20,000	29,000,000	490

[illegible]



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PROJECT: Scott Residence

JOB NO.: U3942-001-201

SUBJECT: COLUMNS

NOTE: COLUMN CAPACITIES LISTED ARE INTENDED AS GENERAL REFERENCE ONLY AND MAY NOT CORRELATE WITH SPECIFIC CALL-OUTS ON PLANS.

GRADES	C	COVE	F _c (psi)	E _{xx} (psi)
SPF#2 (5x) Spruce Pine Fir #2	0.8	0.25	375	1,200,000
SPF#2 (5x) Spruce Pine Fir #2	0.8	0.25	375	1,200,000
SPF#2 Spruce Pine Fir #2	0.8	0.25	1,150	1,400,000
SPFSTUD Spruce Pine Fir S	0.8	0.25	725	1,200,000
24F-V4	0.9	0.10	1,650	1,800,000
24F-V8	0.9	0.10	1,650	1,800,000
LSL	0.9	0.10	1,400	1,300,000
LVL (1.9)	0.9	0.10	2,510	1,900,000
PSL	0.9	0.10	2,500	2,000,000
LVL (2.0)	0.9	0.10	2,510	2,000,000

Effect Length Strong dir 'L _y ' (ft)	Effect Length weak dir 'L _z ' (ft)	Grade	Size	C _m	C ₀	C _F	L _y /d	L _z /b	I/d control	K ₁	K _{CE}	F _{CE} (psi)	F _c * (psi)	C	C _P	Column Area 'A' (in ²)	F _c (psi)	Max allowable load 'P' (lb)	notes
9.5	2	SPFSTUD	(2)2X4	1.00	1.00	1.15	32.57	8.00	32.57	1	0.3	340	834	0.8	0.37	10.5	304.56	3,198	
9.5	2	SPFSTUD	(3)2X4	1.00	1.00	1.15	32.57	5.33	32.57	1	0.3	340	834	0.8	0.37	15.75	304.56	4,797	
9.5	2	SPFSTUD	(4)2X4	1.00	1.00	1.15	32.57	4.00	32.57	1	0.3	340	834	0.8	0.37	21	304.56	6,396	
9.5	2	SPFSTUD	(5)2X4	1.00	1.00	1.15	32.57	3.20	32.57	1	0.3	340	834	0.8	0.37	26.25	304.56	7,995	
9.5	2	SPFSTUD	(2)2X6	1.00	1.00	1.10	20.73	8.00	20.73	1	0.3	839	798	0.8	0.71	16.5	564.7	9,318	
9.5	2	SPFSTUD	(3)2X6	1.00	1.00	1.10	20.73	5.33	20.73	1	0.3	839	798	0.8	0.71	24.75	564.7	13,976	
9.5	2	SPFSTUD	(4)2X6	1.00	1.00	1.10	20.73	4.00	20.73	1	0.3	839	798	0.8	0.71	33	564.7	18,635	
9.5	2	SPFSTUD	(5)2X6	1.00	1.00	1.10	20.73	3.20	20.73	1	0.3	839	798	0.8	0.71	41.25	564.7	23,294	
9.5	9.5	SPF#2	4X4	1.00	1.00	1.15	32.57	32.57	32.57	1	0.3	396	1323	0.8	0.28	12.25	367.87	4,506	
9.5	9.5	SPF#2	4X6	1.00	1.00	1.10	20.73	32.57	32.57	1	0.3	396	1265	0.8	0.29	19.25	366.35	7,052	
9.5	9.5	SPF#2	4X8	1.00	1.00	1.05	15.72	32.57	32.57	1	0.3	396	1208	0.8	0.30	25.375	364.67	9,253	
9.5	9.5	SPF#2	4X10	1.00	1.00	1.00	12.32	32.57	32.57	1	0.3	396	1150	0.8	0.32	32.375	362.78	11,745	
9.5	9.5	SPF#2	4X12	1.00	1.00	1.00	10.13	32.57	32.57	1	0.3	396	1150	0.8	0.32	39.375	362.78	14,285	
9.5	9.5	SPF#2 (5x)	6X4	1.00	1.00	1.00	32.57	20.73	32.57	1	0.3	340	375	0.8	0.66	19.25	245.92	4,734	
9.5	9.5	SPF#2 (5x)	6X6	1.00	1.00	1.00	20.73	20.73	20.73	1	0.3	839	375	0.8	0.88	30.25	331.62	10,032	
9.5	9.5	SPF#2 (5x)	6X8	1.00	1.00	1.00	15.20	20.73	20.73	1	0.3	839	375	0.8	0.88	41.25	331.62	13,679	
9.5	9.5	SPF#2 (5x)	6X10	1.00	1.00	1.00	12.00	20.73	20.73	1	0.3	839	375	0.8	0.88	52.25	331.62	17,327	
9.5	9.5	SPF#2 (5x)	6X12	1.00	1.00	1.00	9.91	20.73	20.73	1	0.3	839	375	0.8	0.88	63.25	331.62	20,975	



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PROJECT: Scott Residence

JOB NO.: U3942-001-201

SUBJECT: FOOTINGS AND FOUNDATIONS

FOOTINGS

Assumed Soil Bearing Pressure

q= 1500 psf

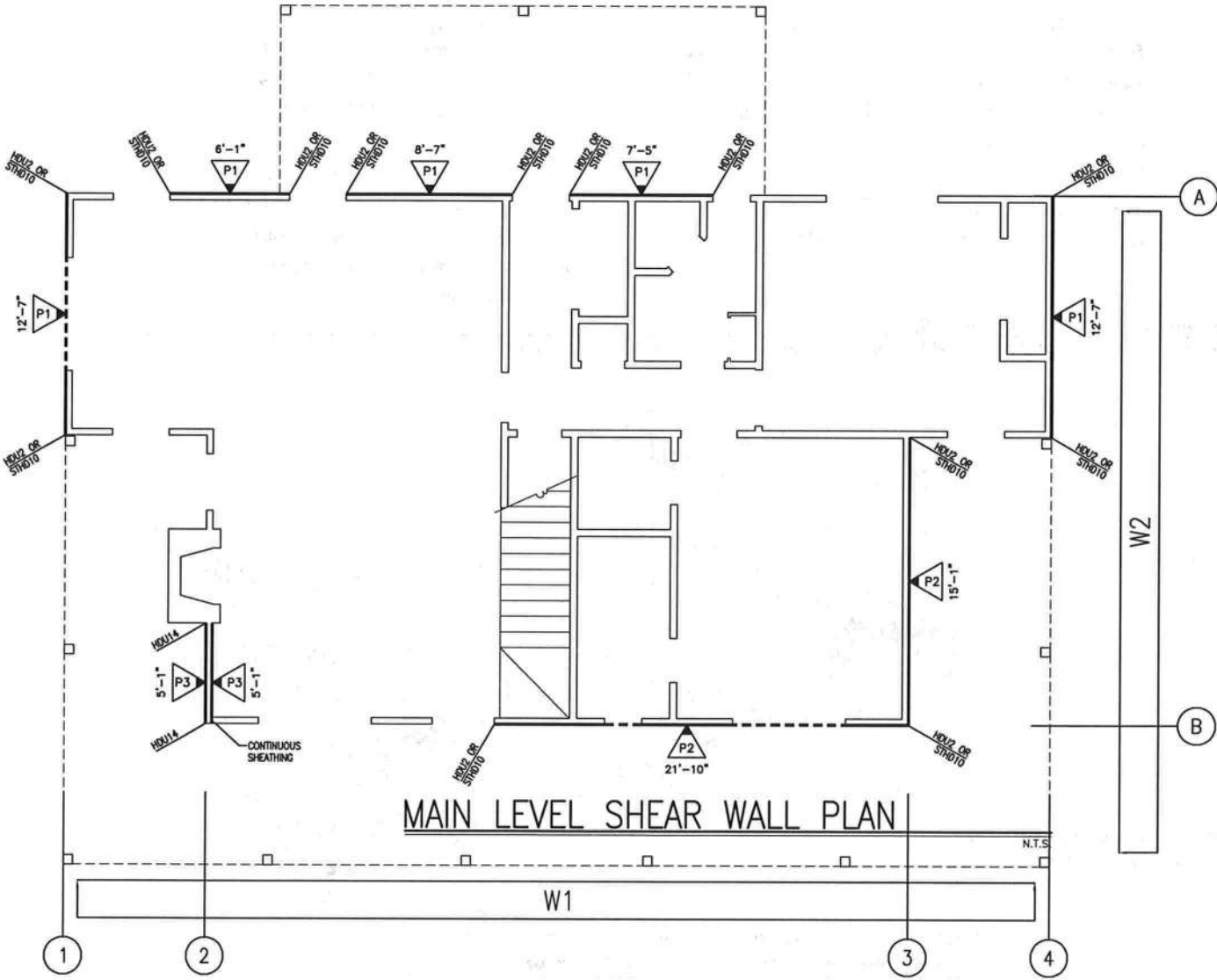
EFP	35	psf
f _c	2500	psi
f _y	60000	psi

Continuous Footings:

Title	Width (in)	Depth (in)	Loads (plf)	#4 Bars
CF1.5	18	10	2250	2
CF1.8	20	10	2500	2
CF2.0	24	12	3000	3
CF2.5	30	12	3750	4
CF3.0	36	12	4500	4
CF3.5	42	12	5250	5
CF4.0	48	12	6000	6
CF1.0	12	12	1500	2
CF1.25	15	12	1875	2

Spread Footings

Title	Width (in)	Depth (in)	Loads (lb)	#4 Bars
F1.5	18	12	3375	2
F2.0	24	12	6000	3
F2.5	30	12	9375	4
F3.0	36	12	13500	4
F3.5	42	12	18375	5
F4.0	48	12	24000	6
F4.5	54	12	30375	6
F5.0	60	12	37500	7
F5.5	66	12	45375	8





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PROJECT: Scott Residence

JOB NO.: U3942-001-201

SUBJECT: LATERAL LOADS

DESIGN OF ENCLOSED SIMPLE DIAPHRAGM LOW-RISE BUILDINGS FOR LATERAL LOADS

Seismic Parameters (ASCE 7-10 Chapters 11, 12, & 22)

Site Class:	D	S. 11.4.2	N =	1	S. 12.8.2.1
R =	6.5	T. 12.2-1	C _t =	0.02	T. 12.8-2
S _s =	0.078	F. 22-1	h _n (ft) =	20	S. 12.8.2.1
S ₁ =	0.047	F. 22-2	x =	0.75	T. 12.8-2
F _a =	1.6	T. 11.4-1	T _a =	0.19	E. 12.8-7
F _v =	2.4	T. 11.4-2	T ₀ =	0.18	S. 11.4.5
S _{MS} =	0.12	E. 11.4-1	T _s =	0.90	S. 11.4.5
S _{M1} =	0.11	E. 11.4-2	C _U =	1.70	T. 12.8-1
S _{DS} =	0.083	E. 11.4-3	T _L =	8	F. 22-12
S _{DI} =	0.075	E. 11.4-4	S _a =	0.083	S. 11.4.5

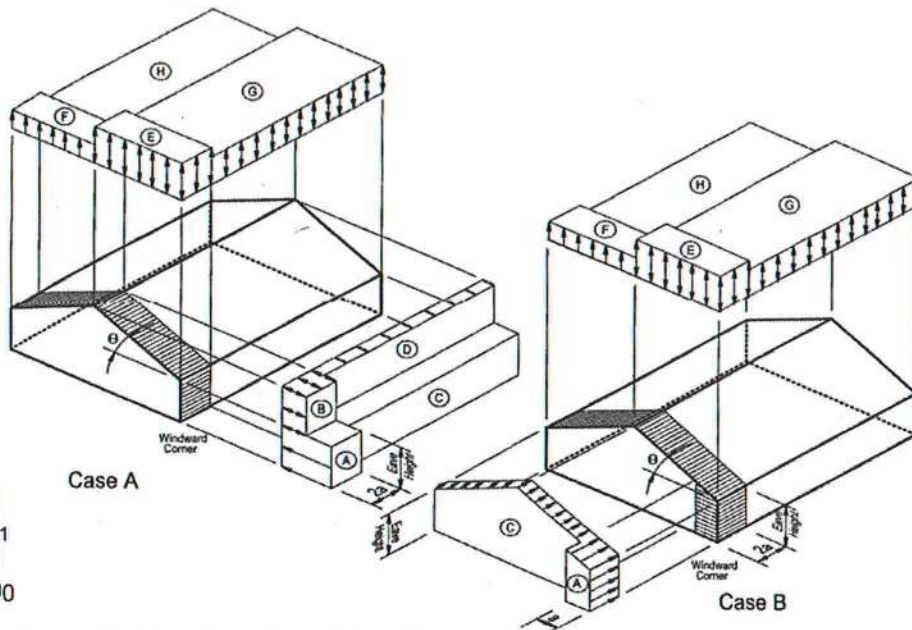
Determination of SDC:

Per Table 11.6-1:	A
Per Table 11.6-2:	B
SDC:	B
I _E =	1.00
C _{SMAX} =	0.061
C _S =	0.013
C _{SMIN} =	0.010
C _{SCONTROL} =	0.013
C _{SCONTROL} * .7 =	0.009

Seismic Analysis Req'd? No IBC 1613.1
Perform Seismic Analysis? No

Wind Parameters (ASCE 7-10 Chapter 26)

Wind areas labeled C and D are used for calculating line loads on the following sheet.



Risk Category: II
Basic Wind Speed (mph): 121
Exposure Category: C
K_{zt}: 1.00

MAIN WIND FORCE RESISTING SYSTEM - METHOD 2 FIGURE 28.6-1
SIMPLIFIED DESIGN WIND PRESSURE, P_{s30} (psf) (Exposure B at h=30 feet)

BASIC WIND SPEED (mph)	ROOF ANGLE (degrees)	LOAD CASE	Note: Wind load determined from pressures below will be multiplied by 0.6 (ASD load factor on wind loads)									
			ZONES									
			HORIZONTAL PRESSURES				VERTICAL PRESSURES				OVERHANGS	
			A	B	C	D	E	F	G	H	E _{OH}	G _{OH}
121	0 to 5°	1	23.3	-12.0	15.4	-7.1	-28.0	-15.8	-19.5	-12.4	-39.1	-30.6
	10°	1	26.1	-10.9	17.4	-6.3	-28.0	-17.0	-19.5	-13.2	-39.1	-30.6
	15°	1	29.2	-9.7	19.5	-5.5	-28.0	-18.2	-19.5	-14.0	-39.1	-30.6
	20°	1	32.2	-8.5	21.5	-4.7	-28.0	-19.5	-19.5	-14.8	-39.1	-30.6
	25°	1	29.2	4.7	21.1	4.9	-13.0	-17.6	-9.3	-14.2	-24.1	-20.5
		2					-4.9	-9.5	-1.4	-6.1		
	30° to 45°	1	26.1	17.8	20.7	14.2	2.0	-15.8	0.6	-13.6	-9.1	-10.5
		2	26.1	17.8	20.7	14.2	10.1	-7.9	8.7	-5.7	-9.1	-10.5



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PROJECT: Scott Residence

JOB NO.: U3942-001-201

SUBJECT: LINE LOADS

Level Descriptions

Label	Height (ft)	W _{control} (lb)	V _{norm} (lb)	V _{redist} (lb)	Redist Fact
Roof	20	60677	777	777	1.00
		0	0	0	1.00
		0	0	0	1.00
		0	0	0	1.00

Total Weight (lb) 60677
 Total Base Shear (lb) 777

Estimated Total Weight in Longitudinal Direction 60273

Estimated Total Weight in Transverse Direction 60677

Percent difference in estimated weights 0.7%

$$k = 1$$

$$\Sigma w_i h_i^k = 1213540$$

Roof DL	18	psf
Seismic Snow	0	psf
Floor DL	18	psf
Wall DL	10	psf
Period, T	0.19	sec

Seismic Line Loads

Label	Width	Level	Direction	Number of times to include	Roof Trib (ft)	Floor Trib (ft)	Wall Trib Height (ft)	Ext Wall Length (ft)	Other Weight (lb/ft)	Total Weight (lb/ft)	Total Force (lb/ft)	Redist Factor	Revised Force (lb/ft)	Force Redist to 1
w1	52.5	Roof	LONG	1	35.67	18	4.5	212.34		1148	15	1.00	15	NO
w2	35.67	Roof	TRANS	1	52.5	26	4.5	228.34		1701	22	1.00	22	NO
w3				1				0		0	0	1.00	0	NO
w4				1				0		0	0	1.00	0	NO
w5				1				0		0	0	1.00	0	NO
w6				1				0		0	0	1.00	0	NO
w7				1				0		0	0	1.00	0	NO
w8				1				0		0	0	1.00	0	NO
w9				1				0		0	0	1.00	0	NO
w10				1				0		0	0	1.00	0	NO
w11				1				0		0	0	1.00	0	NO
w12				1				0		0	0	1.00	0	NO
w13				1				0		0	0	1.00	0	NO
w14				1				0		0	0	1.00	0	NO
w15				1				0		0	0	1.00	0	NO
w16				1				0		0	0	1.00	0	NO
w17				1				0		0	0	1.00	0	NO
w18				1				0		0	0	1.00	0	NO
w19				1				0		0	0	1.00	0	NO
w20				1				0		0	0	1.00	0	NO

Wind Line Loads

Surface type 'C' is flat wall and 'D' is sloped roof, 'CP1' and 'CP2' represent parapets on only one side and both sides of the structure, respectively

Label	Roof Pitch /12	Mean Roof Height (ft)	Surface Type 1	Equiv Height Exposed (ft)	Surface Type 2	Equiv Height Exposed (ft)	Roof Angle (°)	Applied Interior Press 1 (psf)	Applied Interior Press 2 (psf)	Applied End Zone Press 1 (psf)	Applied End Zone Press 2 (psf)	Height & Exp Coeff, λ	Total Int Unif Load (plf)	Total End Zone Unif Load (plf)
w1	7	20	C	4.5	D	15	30.3	26.66	18.30	33.72	23.00	1.29	394.47	496.81
w2	7	20	C	13.9	D	1	30.3	26.66	18.30	33.72	23.00	1.29	388.93	491.74
w3							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w4							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w5							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w6							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w7							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w8							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w9							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w10							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w11							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w12							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w13							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w14							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w15							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w16							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w17							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w18							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w19							0.0	0.00	0.00	0.00	0.00		0.00	0.00
w20							0.0	0.00	0.00	0.00	0.00		0.00	0.00



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PROJECT: PROJECT NAME

Global p value applied

JOB NO.: U3

Calculated p values and controlling locations

SUBJECT: SHEAR WALL SHEET EXPLANATION

Plates = 1
Min Diaphragm Width (ft) = 20
Allowable Seismic Aspect Ratio = 3.5
Allowable Wind Aspect Ratio = 3.5
Comb. Overstrength Factors: (0-0.5)/1.2 = 2.08

Aspect ratio limits

Pl. Loc
1.00 A-1ST
1.00 A-2ND

Loads applied along line, as calculated previously

Roof DL (psf) = 44 (includes seismic snow where occurs)
Floor DL (psf) = 12

Section 12.3.4.1

Diaphragm shear calculations

PERF/FTAO wall calcs where applicable

LINE: A 2ND STORY

Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info	
Load	Trib w (ft)	E.Z. Appl	Span (ft)	Line	%	Location	Seis (lbs)	Wind (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	(Not Applicable)	
wt	10	Major	20		1.00	Offset			91.6	113.0	145.5	6	166	8	114	166	
		None			1.00	Offset								8			
					1.00	Above											
						Total	916	1296									

Plate h (ft) = 10
Max opening height (ft) = 10
Apply 2w/l reduction? Yes
Opening elevation

100% Perforated SW? No
Force Transfer @ Openings? No

Shear Length (ft) = 8
Wall DL (psf) = 10

Story V (K) = 1831
Max allow. drift (in) = 3

Total seismic shear applied at level, for calculating p

Type or wind zone reaction, see below				Selection of wall type, 'No' for both means a segmented wall																				
Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem 'w'- edge dist)	OTM (wind, seismic) (ft-lb)	.6'RM (ft- lb)	Aspect Ratio	2w/l Reduct.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ (in)				
3	2				P1	S1	CS16		4859	351	3.33	0.60	114	156	162	365	372	1502	1705	0.19				
5	2				P1	S1	CS16		8098	976	2.00	1.00	114	260	162	365	372	1424	1705	0.18				
				Information on individual wall piers				Applied unit shears and unit shear capacities (reduced where appropriate)																
Add'l Comments:																				Max:	0.19			

Information on individual wall piers

Applied unit shears and unit shear capacities (reduced where appropriate)

Add'l Comments:

Max: 0.19

LINE: A 1ST STORY

Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Perforated or FTAO calculations				Perf/FTAO Wall Info				
Load	Trib w (ft)	E.Z. Appl	Span (ft)	Line	%	Location	Seis (lbs)	Wind (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Rdl (ft)
wt	10	Major	20		1.00	Offset			99.9	100.9	152.5	6								
		None			1.00	Offset														
				A-2ND	1.00	Above	916	1296												
						Total	1915	2305												
Plate h (ft) = 10				Include Ω for irregularities above?								126				276				
Max opening height (ft) = 4																				
Apply 2w/ reduction? Yes				50% Perforated SW? No				Shear Length (ft) = 8				Story V (K) = 38				Hold down information for global wall overturning				
Opening elevation 2				Force Transfer @ Openings? Yes				Wall DO (psf) = 10				Max allow. drift (in)								
																1151				
																1345				
																1367				
																442				
																884				
																2940				
																380				
																520				

Plate h (ft) = 10
Max opening height (ft) = 4
Apply 2w/l reduction? Yes
Opening elevation = 2

50% Perforated SW? No
Force Transfer @ Openings? Yes

Shear Length (ft) = 8
Wall DL (psf) = 10

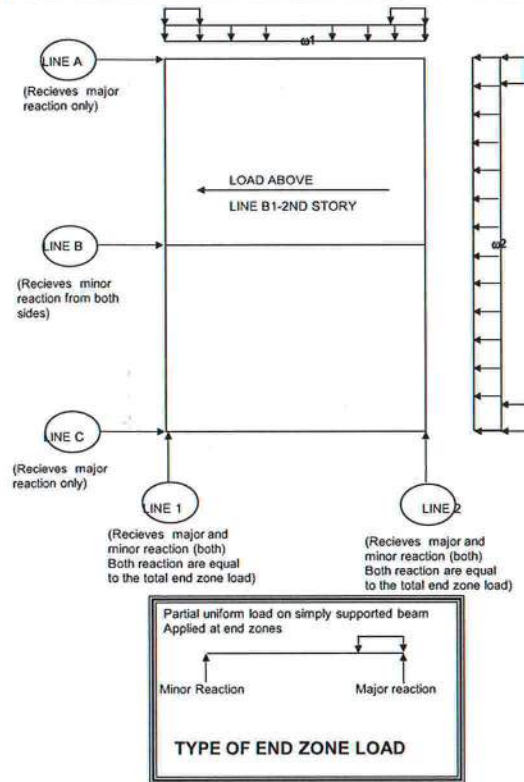
Story V (K) = 383
Max allow. drift (in) = 3

Hold down information for global wall overturning

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Required only for FTAO method	Wall Type	Sill Type	Strap	HD Capacity (Stem 'w'-edge dist)	OTM (wind, seismic) (ft-lb)	.6'RM (ft-lb)	Aspect Ratio	2w/l Reduct.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max unit shear and strap forces calculated by Diekmann method for FTAO walls
3					PERF/FTAO SHEAR-WALL CALCULATIONS APPLY - SEE ABOVE							1.33	1.00								
5												0.80	1.00								

Add'l Comments:

Max: 0.00





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PROJECT: Scott Residence

JOB NO.: U3942-001-201

SUBJECT: SHEAR WALLS

Applied = 1 Min Diaphragm Width (ft) = 35.67 Allowable Seismic Aspect Ratio = 3.5 Allowable Wind Aspect Ratio = 3.5 Comb. Overstrength Factors: (0-0.5)/1.2 = 2.08	<table border="1"> <tr> <th>p_i</th> <th>Loc</th> <th>Fp/Fx</th> </tr> <tr> <td>1.00</td> <td>1-1ST</td> <td>1.00</td> </tr> <tr> <td></td> <td></td> <td>1.00</td> </tr> <tr> <td></td> <td></td> <td>1.00</td> </tr> <tr> <td></td> <td></td> <td>1.00</td> </tr> </table>	p_i	Loc	Fp/Fx	1.00	1-1ST	1.00			1.00			1.00			1.00	Roof DL (psf) = 18 Floor DL (psf) = 18	(includes seismic snow where occurs)
p_i	Loc	Fp/Fx																
1.00	1-1ST	1.00																
		1.00																
		1.00																
		1.00																

p calculated in accordance with:
ASCE7-10 Section 12.3.4.2
No Exception in ASCE 7 12.3.4.2b met?

LINE: 1 1ST STORY															Timber Framed Shearwall Calculations														
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info				Rdi (ft)									
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	Total (ft)	12.583333	Fdi (ft)											
w1	4	None	8		1.00	Offset				236.7	298.1	7.134		12.5833															
		None			1.00	Offset								12.5833															
					1.00	Above									166														
						Total		947							232														
Plate h (ft) = 9.5 Max opening height (ft) = 5 Apply aspect ratio reduction? Yes Opening elevation										Include Ω for irregularities (above)? No Shear Length (ft) = 6.83333 Wall DL (psf) = 10 Story V (K) = Max allow. drift (in) = 2.28																			
67% Perforated SW? Yes Force Transfer @ Openings? No										Wind (Load vs. Allow.) 75 232 Wall type Co 0.90 P1 Opening (ft) 5.75 HD STHD10 8"-Corner T (lb) 969 HD cap 3500 Seis (plf) Cap (plf) 202 Wind (plf) 139 Cap (plf) 283 Δ (in) 1.2																			

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
3.41667											2.78	0.72								
3.41667											2.78	0.72								

Add'l Comments:

Max:

LINE: 2 1ST STORY															Timber Framed Shearwall Calculations														
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info													
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	(Not Applicable)													
w1	22.5	None	45		1.00	Offset				236.7	298.1	9		28															
		None			1.00	Offset								5.08333															
					1.00	Above									166														
						Total		5325							190														
Plate h (ft) = 9.5 Max opening height (ft) = 9.5 Apply aspect ratio reduction? Yes Opening elevation										Include Ω for irregularities (above)? No Shear Length (ft) = 5.08333 Wall DL (psf) = 10 Story V (K) = Max allow. drift (in) = 2.28																			
100% Perforated SW? No Force Transfer @ Openings? No										Wind (Load vs. Allow.) 232																			

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
5.08333	4				DBL P3	S4	HDU14		50591	1295	1.87	1.00		840	1048	1180	1152	9698	10350	1.24

Add'l Comments:

Max:

LINE: 3 1ST STORY															Timber Framed Shearwall Calculations														
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info													
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	(Not Applicable)													
w1	22.5	None	45		1.00	Offset				236.7	298.1	9		15.0833															
		None			1.00	Offset								15.0833															
					1.00	Above									166														
						Total		5325							353														
Plate h (ft) = 9.5 Max opening height (ft) = 9.5 Apply aspect ratio reduction? Yes Opening elevation										Include Ω for irregularities (above)? No Shear Length (ft) = 15.0833 Wall DL (psf) = 10 Story V (K) = Max allow. drift (in) = 2.28																			
100% Perforated SW? No Force Transfer @ Openings? No										Wind (Load vs. Allow.) 232																			

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
15.0833	4				P2	S2	STHD10	8"-Corner	50591	11398	0.63	1.00		325	353	432	432	2598	3500	0.27

Add'l Comments:

Max:

LINE: 4 1ST STORY															Timber Framed Shearwall Calculations														
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info													
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	(Not Applicable)													
w1	4	None	8		1.00	Offset				236.7	298.1	7.134		12.5833															
		None			1.00	Offset								12.5833															
					1.00	Above									166														
						Total		947							75														
Plate h (ft) = 9.5 Max opening height (ft) = 9.5 Apply aspect ratio reduction? Yes Opening elevation										Include Ω for irregularities (above)? No Shear Length (ft) = 12.5833 Wall DL (psf) = 10 Story V (K) = Max allow. drift (in) = 2.28																			
100% Perforated SW? No Force Transfer @ Openings? No										Wind (Load vs. Allow.) 232																			

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
12.5833	2				P1	S1	STHD10		8994	6223	0.75	1.00		225	75	315	320	220		#DIV/0!

Add'l Comments:

Max:



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PROJECT: Scott Residence

JOB NO.: U3942-001-201

SUBJECT: SHEAR WALLS

$p_{Applied} = 1$ Min Diaphragm Width (ft) = 35.67 Allowable Seismic Aspect Ratio = 3.5 Allowable Wind Aspect Ratio = 3.5 Comb. Overstrength Factors: (0.5)/1.2 = 2.08	p_1 1.00 1-1ST	F_p/F_x 1.00 1.00 1.00 1.00	p calculated in accordance with: ASCE 7-10 Section 12.3.4.2 No Exception in ASCE 7 12.3.4.2b met?	Roof DL (psf) = 18 Floor DL (psf) = 18	(includes seismic snow where occurs)
--	--	---	---	--	---

LINE: A 1ST STORY Timber Framed Shearwall Calculations														Perf/FTAO Wall Info			
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info	
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	(Not Applicable)	
w_2	20	None	40		1.00	Offset				233.4	295.0	8		22.0833	166		
		None			1.00	Offset								22.0833			
					1.00	Above											
						Total		4667									
Plate h (ft) = 9.5								Include Ω for irregularities (above)?				No					
Max opening height (ft) = 9.5																	
Apply aspect ratio reduction? Yes																	
Opening elevation																	
				100% Perforated SW?				No				Shear Length (ft) = 22.0833				Story V (K) =	
				Force Transfer @ Openings?				No				Wall DL (psf) = 10				Max allow. drift (in) = 2.28	

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
8.58333	7				P1	S1	STHD10	8"-Corner	17233	4885	1.11	1.00		225	211	315	320	1439	3500	0.27
6.08333	12				P1	S1	STHD10	8"-Corner	12214	3453	1.56	1.00		225	211	315	320	1440	3500	0.38
7.41667	12				P1	S1	STHD10	8"-Corner	14891	5132	1.28	1.00		225	211	315	320	1316	3500	0.28

Add'l Comments:

Max: 0.38

LINE: B 1ST STORY Timber Framed Shearwall Calculations																					
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info		Rdl (ft)			
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	Ltotal (ft)	21.75	Fdl (ft)			
w2	22	None	44		1.00	Offset				233.4	295.0	8.8		21.75							
		None			1.00	Offset								21.75							
					1.00	Above															
						Total		5134													
Plate h (ft)= 9.5								Include Ω for irregularities (above)?				No									
Max opening height (ft)= 5																					
Apply aspect ratio reduction? Yes				67%				Perforated SW?				Yes				Shear Length (ft)= 14				Story V (K)=	
Opening elevation				Force Transfer @ Openings?				No				Wall DL (psf)= 10				Max allow. drift (in)= 2.28					
																Co	0.86	DL (plf)	293		
																Wall type	P2	Opening (ft)	7.75		
																HD	STHD10	8"-Corner			
																T (lb)	2131	HD cap	3500		
																Seis (plf)		Cap (plf)	280		
																Wind (plf)	367	Cap (plf)	372		
																		Δ (in)	1.66		

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
5.83333											1.63	1.00								
4.83333											1.97	1.00								
3.33333											2.85	0.70								

Add'l Comments:

Max:

LINE: STORY Timber Framed Shearwall Calculations														Perf/FTAO Wall Info			
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info	
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	(Not Applicable)	
		None			1.00	Offset									#N/A		
		None			1.00	Offset											
					1.00	Above											
						Total											
Plate h (ft) = 9.5								Include Ω for irregularities (above)?				No					
Max opening height (ft) = 9.5																	
Apply aspect ratio reduction? Yes																	
Opening elevation																	
				100% Perforated SW?				No				Shear Length (ft) =				Story V (K) =	
				Force Transfer @ Openings?				No				Wall DL (psf) = 10				Max allow. drift (in) = 2.28	

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
														#VALUE!	#VALUE!					

Add'l Comments:

Max:

LINE: STORY Timber Framed Shearwall Calculations														Perf/FTAO Wall Info			
Line Loads (plf)				Loads from above				Actual Applied Loads (plf unless noted otherwise)				Diaphragm Shear (plf)				Perf/FTAO Wall Info	
Load	Trib w (ft)	E.Z. Appl*	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	p*Seis	Wind	E.Z. Wind	2a (ft)	E.Z. P (lb)	Drag (ft)	Seis (Load vs. Allow.)	(Not Applicable)	
		None			1.00	Offset									#N/A		
		None			1.00	Offset											
					1.00	Above											
						Total											
Plate h (ft) = 9.5								Include Ω for irregularities (above)?				No					
Max opening height (ft) = 9.5																	
Apply aspect ratio reduction? Yes																	
Opening elevation																	
				100% Perforated SW?				No				Shear Length (ft) =				Story V (K) =	
				Force Transfer @ Openings?				No				Wall DL (psf) = 10				Max allow. drift (in) = 2.28	

Shear-Wall Length (ft)	Roof _{DL} 'w' (ft)	Floor _{DL} 'w' (ft)	Other _{DL} 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (wind, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
														#VALUE!	#VALUE!					

Add'l Comments:

Max: