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STRUCTURAL CALCULATIONS

JOB NUMBER: 2020-20

HARRY ABEL INSURANCE AGENCY
OFFICE ADDITION & REMODEL
875 HWY 101
FLORENCE, OREGON

July, 2020

EXPIRES 6/30/2021

Design Criteria:

Roof Dead Load:	20 psf
Roof Snow Load:	20 psf
Wind Speed, Exposure:	130 MPH, D
Seismic Coefficients Ss, S_1, Site Class:	1.406, 0.739, D
Timber Species & Grade:	Douglas Fir, No 2, Unless Noted
Glued Laminated Beam Type & Grade:	24F-V4 DF/DF, Exterior Glue
I Joist Manufacturer:	Weyerhaeuser, Trus-Joist, TJI
Engineered Lumber Manufacturer:	Weyerhaeuser, TimberStrand, LSL, 1.55E
Roof Sheathing Type & Span Rating:	19/32”, Exposure 1, CDX, 32/16
Wall Sheathing Type & Span Rating:	15/32”, Exposure 1, CDX, 24/16
Concrete Compressive Strength (f'c):	2500 psi
Reinforcing Steel Type & Grade:	ASTM A615, Grade 60
Soil Bearing Capacity:	1500 psf

Notes:

Work not specifically detailed shall be constructed in accordance with the 2019 Oregon Structural Specialty Code.

Scope:

Perform structural engineering calculations and review structural drawings.

Prepared for:

Crow/Clay & Associates Inc.
125 West Central Avenue
Suite 400
Coos Bay, Oregon 97420
(541) 269-9388

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Project Title: ABEL INSURANCE
Engineer: ATG
Project ID: 2020-20
Project Descr: OFFICE ADDITION & REMODEL

Printed: 8 JUN 2020, 10:28AM

ASCE 7-16 Wind Forces, Chapter 27, Part I

Lic. # : KW-06009472 — ACE Engineering LLC

DESCRIPTION: ABEL INSURANCE OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON

ABEL INSURANCE OFFICE ADDITION & REMODEL, 875 HWY 101, FLORENCE, OREGON

Basic Values

Risk Category	3 per ASCE 7-16 Table 1.5-1	Horizontal Dim. in North-South Direction (B or L) =	58.0 ft
V : Basic Wind Speed	130.0	Horizontal Dim. in East-West Direction (B or L) =	50.50 ft
Kd : Directionality Factor	0.850 per ASCE 7-16 Table 26.6-1	h : Mean Roof height =	15.0 ft

Exposure Category per ASCE 7-16 Section 26.7

North : Exposure D East : Exposure D
South : Exposure D West : Exposure D

Topographic Factor per ASCE 7-16 Sec 26.8 & Figure 26.8-1

North :	K1 =	K2 =	K3 =	Kzt = 1.000
South :	K1 =	K2 =	K3 =	Kzt = 1.000
East :	K1 =	K2 =	K3 =	Kzt = 1.000
West :	K1 =	K2 =	K3 =	Kzt = 1.000

Building Period & Flexibility Category

User has specified the building frequency is >= 1 Hz, therefore considered RIGID for both North-South and East-West directions.

Building Story Data

Level Description	hi ft	Story Ht ft	E_R : X ft	E_R : X ft
PEAK	16.00	6.25	0.000	0.000
EAVE	9.75	9.75	0.000	0.000

Gust Factor

For wind coming from direction indicated

North	=	0.850	South	=	0.850
East	=	0.850	West	=	0.850

Enclosure

Check if Building Qualifies as "Open"

	North Wall	South Wall	East Wall	West Wall	Roof	Total
Agross	2,004.0 ft^2	950.0 ft^2	644.0 ft^2	644.0 ft^2	ft^2	4,242.0 ft^2
Aopenings	210.0 ft^2	40.0 ft^2	300.0 ft^2	300.0 ft^2	ft^2	850.0 ft^2
Aopenings >= 0.8 * Agross ?	No	No	No	No		

All four Agross values must be non-zero — Building does NOT qualify as "Open"

North Elevation : Determine Enclosure Classification per ASCE Section 26.12

Reference area = smaller of 4 sq. ft. or 1% of Agross	=	4.0 ft^2	Is Ao > 1.10 * Aoi ?	=	No
Aoi = Ao-total - Ao	=	640.0 ft^2	Is Ao > Reference Area ?	=	Yes
Agi = Ag-total - Ag	=	2,238.0 ft^2	Is Aoi / Agi >= 0.20 ?	=	No
Aoi / Agi	=	0.2860			

Building is "Enclosed" when the North wall receives positive external pressure

South Elevation : Determine Enclosure Classification per ASCE Section 26.12

Reference area = smaller of 4 sq. ft. or 1% of Agross	=	4.0 ft^2	Is Ao > 1.10 * Aoi ?	=	No
Aoi = Ao-total - Ao	=	810.0 ft^2	Is Ao > Reference Area ?	=	Yes
Agi = Ag-total - Ag	=	3,292.0 ft^2	Is Aoi / Agi >= 0.20 ?	=	No
Aoi / Agi	=	0.2461			

Building is "Enclosed" when the South wall receives positive external pressure

East Elevation : Determine Enclosure Classification per ASCE Section 26.12

Reference area = smaller of 4 sq. ft. or 1% of Agross	=	4.0 ft^2	Is Ao > 1.10 * Aoi ?	=	No
Aoi = Ao-total - Ao	=	550.0 ft^2	Is Ao > Reference Area ?	=	Yes
Agi = Ag-total - Ag	=	3,598.0 ft^2	Is Aoi / Agi >= 0.20 ?	=	Yes
Aoi / Agi	=	0.1529			

Building is "Enclosed" when the East wall receives positive external pressure

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ASCE 7-16 Wind Forces, Chapter 27, Part I

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DESCRIPTION: ABEL INSURANCE OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON

West Elevation : Determine Enclosure Classification per ASCE Section 26.12

Reference area = smaller of 4 sq. ft. or 1% of Agross	=	4.0 ft^2	Is Ao > 1.10 * Aoi ?	=	No
Aoi = Ao-total - Ao	=	550.0 ft^2	Is Ao > Reference Area ?	=	Yes
Agi = Ag-total - Ag	=	3,598.0 ft^2	Is Aoi / Agi >= 0.20 ?	=	Yes
Aoi / Agi	=	0.1529			

Building is "Enclosed" when the West wall receives positive external pressure

Velocity Pressures

When the following walls experience leeward or sidewall pressures, the value of Kh shall be (per Table 26.10-1) :

North Wall = 1.030 psf South Wall = 1.030 psf East Wall = 1.030 psf West Wall = 1.030 psf

When the following walls experience leeward or sidewall pressures, the value of qh shall be (per Table 26.10-1) :

North Wall = 37.886 psf South Wall = 37.886 psf East Wall = 37.886 psf West Wall = 37.886 psf

qz : Windward Wall Velocity Pressures at various heights per Eq. 26.10-1

	North Elevation		South Elevation		East Elevation		West Elevation	
Height Above Base (ft)	Kz	qz	Kz	qz	Kz	qz	Kz	qz
0.00	1.030	37.89	1.030	37.89	1.030	37.89	1.030	37.89
4.00	1.030	37.89	1.030	37.89	1.030	37.89	1.030	37.89
8.00	1.030	37.89	1.030	37.89	1.030	37.89	1.030	37.89
12.00	1.030	37.89	1.030	37.89	1.030	37.89	1.030	37.89

Pressure Coefficients

GCpi Values when elevation receives positive external pressure

GCpi : Internal pressure coefficient, per sec. 26.13 and Table 26.13-1

North	South	East	West
+/- 0.180	+/- 0.180	+/- 0.180	+/- 0.180

Specify Cp Values from Figure 27.3-1 for Windward, Leeward & Side Walls

Cp Values when elevation receives positive external pressure

	North	South	East	West
Windward Wall	0.80	0.80	0.80	0.80
Leeward Wall	-0.30	-0.30	-0.30	-0.30
Side Walls	-0.70	-0.70	-0.70	-0.70

Wind Pressures

Wind Pressures when NORTH Elevation receives positive external wind pressure

	Positive Internal	Negative Internal
Leeward Wall Pressures	-16.480 psf	-2.841 psf
Side Wall Pressures	-29.362 psf	-15.723 psf

Windward Wall Pressures . . . Height Above Base (ft)	Positive Internal Pressure (psf)	Negative Internal Pressure (psf)
0.00	18.94	32.58
4.00	18.94	32.58
8.00	18.94	32.58
12.00	18.94	32.58

Wind Pressures when SOUTH Elevation receives positive external wind pressure

	Positive Internal	Negative Internal
Leeward Wall Pressures	-16.480 psf	-2.841 psf
Side Wall Pressures	-29.362 psf	-15.723 psf

Windward Wall Pressures . . . Height Above Base (ft)	Positive Internal Pressure (psf)	Negative Internal Pressure (psf)
0.00	18.94	32.58
4.00	18.94	32.58

8.00	18.94	32.58
12.00	18.94	32.58

Wind Pressures when EAST Elevation receives positive external wind pressure

	Positive Internal	Negative Internal
Leeward Wall Pressures	-16.480 psf	-2.841 psf
Side Wall Pressures	-29.362 psf	-15.723 psf

Windward Wall Pressures . . . Height Above Base (ft)	Positive Internal Pressure (psf)	Negative Internal Pressure (psf)
0.00	18.94	32.58
4.00	18.94	32.58
8.00	18.94	32.58
12.00	18.94	32.58

Wind Pressures when WEST Elevation receives positive external wind pressure

	Positive Internal	Negative Internal
Leeward Wall Pressures	-16.480 psf	-2.841 psf
Side Wall Pressures	-29.362 psf	-15.723 psf

Windward Wall Pressures . . . Height Above Base (ft)	Positive Internal Pressure (psf)	Negative Internal Pressure (psf)
0.00	18.94	32.58
4.00	18.94	32.58
8.00	18.94	32.58
12.00	18.94	32.58

Story Forces for Design Wind Load Cases

Values below are calculated based on a building with dimensions B x L x h as defined on the "Basic Values" tab.

Load Case	Windward Wall	Building level	Ht. Range	Trib. Height	Wind Shear Components (k) In "Y" Direction	In "X" Direction	Eccentricity for (ft) "Y" Shear	"X" Shear	Mt, (ft-k)
CASE 1	North	Level 2	12.88' -> 16.00'	3.13	-5.60	---	---	---	---
CASE 1	North	Level 1	4.88' -> 12.88'	8.00	-14.31	---	---	---	---
CASE 1	South	Level 2	12.88' -> 16.00'	3.13	5.60	---	---	---	---
CASE 1	South	Level 1	4.88' -> 12.88'	8.00	14.31	---	---	---	---
CASE 1	East	Level 2	12.88' -> 16.00'	3.13	---	-6.43	---	---	---
CASE 1	East	Level 1	4.88' -> 12.88'	8.00	---	-16.44	---	---	---
CASE 1	West	Level 2	12.88' -> 16.00'	3.13	---	6.43	---	---	---
CASE 1	West	Level 1	4.88' -> 12.88'	8.00	---	16.44	---	---	---
CASE 2	North	Level 2	12.88' -> 16.00'	3.13	-4.20	---	---	7.58 +/-	31.8
CASE 2	North	Level 1	4.88' -> 12.88'	8.00	-10.73	---	---	7.58 +/-	81.3
CASE 2	South	Level 2	12.88' -> 16.00'	3.13	4.20	---	---	7.58 +/-	31.8
CASE 2	South	Level 1	4.88' -> 12.88'	8.00	10.73	---	---	7.58 +/-	81.3
CASE 2	East	Level 2	12.88' -> 16.00'	3.13	---	-4.82	8.70	--- +/-	41.9
CASE 2	East	Level 1	4.88' -> 12.88'	8.00	---	-12.33	8.70	--- +/-	107.2
CASE 2	West	Level 2	12.88' -> 16.00'	3.13	---	4.82	8.70	--- +/-	41.9
CASE 2	West	Level 1	4.88' -> 12.88'	8.00	---	12.33	8.70	--- +/-	107.2
CASE 3	North & East	Level 2	12.88' -> 16.00'	3.13	-4.20	-4.82	---	---	---
CASE 3	North & East	Level 1	4.88' -> 12.88'	8.00	-10.73	-12.33	---	---	---

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ASCE 7-16 Wind Forces, Chapter 27, Part I

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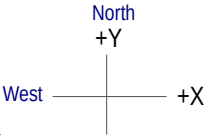
DESCRIPTION: ABEL INSURANCE OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON

CASE 3	North & West	Level 2	12.88' ->	16.00'	3.13	-4.20	4.82	---	---	---
CASE 3	North & West	Level 1	4.88' ->	12.88'	8.00	-10.73	12.33	---	---	---
CASE 3	South & West	Level 2	12.88' ->	16.00'	3.13	4.20	4.82	---	---	---
CASE 3	South & West	Level 1	4.88' ->	12.88'	8.00	10.73	12.33	---	---	---
CASE 3	South & East	Level 2	12.88' ->	16.00'	3.13	4.20	-4.82	---	---	---
CASE 3	South & East	Level 1	4.88' ->	12.88'	8.00	10.73	-12.33	---	---	---
CASE 4	North & East	Level 2	12.88' ->	16.00'	3.13	-3.15	-3.62	8.70	7.58 +/-	55.4
CASE 4	North & East	Level 1	4.88' ->	12.88'	8.00	-8.06	-9.25	8.70	7.58 +/-	141.5
CASE 4	North & West	Level 2	12.88' ->	16.00'	3.13	-3.15	3.62	8.70	7.58 +/-	55.4
CASE 4	North & West	Level 1	4.88' ->	12.88'	8.00	-8.06	9.25	8.70	7.58 +/-	141.5
CASE 4	South & West	Level 2	12.88' ->	16.00'	3.13	3.15	3.62	8.70	7.58 +/-	55.4
CASE 4	South & West	Level 1	4.88' ->	12.88'	8.00	8.06	9.25	8.70	7.58 +/-	141.5
CASE 4	South & East	Level 2	12.88' ->	16.00'	3.13	3.15	-3.62	8.70	7.58 +/-	55.4
CASE 4	South & East	Level 1	4.88' ->	12.88'	8.00	8.06	-9.25	8.70	7.58 +/-	141.5
Min per ASCE 27.1.5	North	Level 2	12.88' ->	16.00'	3.13	-2.53	---	---	---	---
Min per ASCE 27.1.5	North	Level 1	4.88' ->	12.88'	8.00	-6.46	---	---	---	---
Min per ASCE 27.1.5	South	Level 2	12.88' ->	16.00'	3.13	2.53	---	---	---	---
Min per ASCE 27.1.5	South	Level 1	4.88' ->	12.88'	8.00	6.46	---	---	---	---
Min per ASCE 27.1.5	East	Level 2	12.88' ->	16.00'	3.13	---	-2.90	---	---	---
Min per ASCE 27.1.5	East	Level 1	4.88' ->	12.88'	8.00	---	-7.42	---	---	---
Min per ASCE 27.1.5	West	Level 2	12.88' ->	16.00'	3.13	---	2.90	---	---	---
Min per ASCE 27.1.5	West	Level 1	4.88' ->	12.88'	8.00	---	7.42	---	---	---

Base Shear for Design Wind Load Cases



Values below are calculated based on a building with dimensions B x L x h as defined on the "General" tab.

Load Case	Windward Wall	Leeward Wall	Wind Base Shear Components (k) In "Y" Direction	In "X" Direction		Mt, (ft-k)
Case 1	North	South	-19.91	---		---
Case 1	South	North	19.91	---		---
Case 1	East	West	---	-22.87		---
Case 1	West	East	---	22.87		---
Case 2	North	South	-14.93	---	+/-	113.1
Case 2	South	North	14.93	---	+/-	113.1
Case 2	East	West	---	-17.15	+/-	149.2
Case 2	West	East	---	17.15	+/-	149.2
Case 3	North & East	South & West	-14.93	-17.15		---
Case 3	North & West	South & East	-14.93	17.15		---
Case 3	South & West	North & East	14.93	17.15		---
Case 3	South & East	North & West	14.93	-17.15		---
Case 4	North & East	South & West	-11.21	-12.87	+/-	196.9
Case 4	North & West	South & East	-11.21	12.87	+/-	196.9
Case 4	South & West	North & East	11.21	12.87	+/-	196.9
Case 4	South & East	North & West	11.21	-12.87	+/-	196.9
Min per ASCE 27.1.5	North	South	-8.99	---		---

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Min per ASCE 27.1.5	South	North	8.99	---	---
Min per ASCE 27.1.5	East	West	---	-10.32	---
Min per ASCE 27.1.5	West	East	---	10.32	---

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PROJECT: **2020-20 ABEL INSURANCE OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON**
DETERMINE SEISMIC LOAD

SEISMIC DESIGN USING ASCE 7

SITE CLASS	**D**	ASCE 7 TABLE 20.3-1
RISK CATEGORY	**2**	ASCE 7 TABLE 1.5-1
I_E	**1**	ASCE 7 TABLE 1.5-2
Ss	**1.406**	ASCE 7 FIGURE 22-1
S_1	**0.739**	ASCE 7 FIGURE 22-2
Fa	**1.20**	ASCE 7 TABLE 11.4-1
Fv	**1.70**	ASCE 7 TABLE 11.4-2
R	**6.5**	ASCE 7 TABLE 12.14-1

Ct	**0.02**	ASCE 7 TABLE 12.8-2
X	**0.75**	ASCE 7 TABLE 12.8-2
hn	**9**	ft (AVERAGE ROOF HEIGHT)
SDC	**D**	ASCE 7 TABLE 11.6-1 & 11.6-2
ap	**1**	ASCE 7 TABLE 13.5-1 & 13.6-1
Rp	**2.5**	ASCE 7 TABLE 13.5-1 & 13.6-1
Ip	**1.00**	ASCE 7 SECTION 13.1.3
z	**9**	ft (HEIGHT OF ELEMENT)
ρ	**1.00**	ASCE 7 SECTION 12.3.4 (1.0 or 1.3)

DESIGN WEIGHT

ELEMENT	UNIT WT.	AREA	WEIGHT	
ROOF	**30**	**2929**	87.87	kip
			0	kip
			0	kip
			0	kip
			0	kip
-			0	
			0	kip
			0	kip
			0	kip
		TOTAL	88	kip

BUILDINGS:

S_{MS}	1.687	ASCE 7 (11.4-1)
S_{M1}	1.256	ASCE 7 (11.4-2)
S_{DS}	1.125	ASCE 7 (11.4-3)
S_{D1}	0.838	ASCE 7 (11.4-4)
Cs	0.173	ASCE 7 (12.8-2)
Csmax	1.240	ASCE 7 (12.8-3)
Csmin	0.063	ASCE 7 (12.8-5)
V	0.173	W ASCE 7 (12.8-1)
E	0.173	W
V	15.21	kip

ELEMENTS:

Fp	0.54	Wp ASCE 7 (13.3-1, 2, 3)
Fp	47.441	kip

T	0.104	ASCE 7 (12.8-7)

Fa			Ss			
SITE CLASS	0.25	0.5	0.75	1	1.25	1.5
A	0.8	0.8	0.8	0.8	0.8	0.8
B	0.9	0.9	0.9	0.9	0.9	0.9
C	1.3	1.3	1.2	1.2	1.2	1.2
D	1.6	1.4	1.2	1.1	1	1

Fv			S_1			
SITE CLASS	0.1	0.2	0.3	0.4	0.5	0.6
A	0.8	0.8	0.8	0.8	0.8	0.8
B	0.8	0.8	0.8	0.8	0.8	0.8
C	1.5	1.5	1.5	1.5	1.5	1.4
D	2.4	2.2	2	1.9	1.8	1.7

T	k
0.5	1
2.5	2

k 1 ASCE 7 SECTION 12.8.3

VERTICAL FORCE DISTRIBUTION

LEVEL	HEIGHT	h^k	$w h^k$	(12.8-11)	0.7E	
ROOF	**9.75**	9.75	856.7325	15.21	10.64	kip
	0	0.00	0	0.00	0.00	kip
	0	0.00	0	0.00	0.00	kip
	0	0.00	0	0.00	0.00	kip
	0	0.00	0	0.00	0.00	kip
	0	0.00	0	0.00	0.00	kip
	0	0.00	0	0.00	0.00	kip
	0	0.00	0	0.00	0.00	kip
	0	0	0	0.00	0.00	kip
			856.7325	15.21	10.64	

DIAPHRAGM FORCE DISTRIBUTION

Σ Fi	Σ wi	(12.10-1, 2 & 3)	
15.21	87.87	19.77	kip
15.21	87.87	0.00	kip
15.21	87.87	0.00	kip
15.21	87.87	0.00	kip
15.21	87.87	0.00	kip
15.21	87.87	0.00	kip
15.21	87.87	0.00	kip
15.21	87.87	0.00	kip
15.21	87.87	0.00	kip

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LATERAL DESIGN - TIMBER DIAPHRAGM

PROJECT:	**2020-20 ABEL INSURANCE OFFICE REMODEL, 875 HWY 101, FLORENCE, OR**			
LINE:	**ROOF DIAPHRAGM**			
	10d OR 8d:	**8d**		
OVERSTRENGTH FACTOR:	Ω=	**1**		
UNIFORM WIND LOAD ON DIAPHRAGM:	w_w=	**237**	plf	USE 0.6W
UNIFORM SEISMIC LOAD ON DIAPHRAGM:	w_E=	**274**	plf	USE 0.7E
POINT WIND LOAD ON DIAPHRAGM:	V_w=	**0**	kips	USE 0.6W
POINT SEISMIC LOAD ON DIAPHRAGM:	V_E=	**0**	kips	USE 0.7E
LOCATION OF POINT LOAD:	x=	**1**	ft	
DIAPHRAGM DIMENSIONS: (SPAN LENGTH)	L=	**58**	ft	
(WIDTH)	W=	**50.5**	ft	

ASPECT RATIO:		1.148515		OK
MAXIMUM WIND SHEAR ON DIAPHRAGM		6.86	kips	SEISMIC GOVERNS
MAXIMUM SEISMIC SHEAR ON DIAPHRAGM		7.95	kips	EQ

		EQ plf	W plf	
DISTANCE FROM DIAPHRAGM EDGE	0	**157.3693**	**135.8614**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED
4' FROM EDGE	4	**135.6632**	**117.1219**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED
8' FROM EDGE	8	**113.9571**	**98.38238**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED
12' FROM EDGE	12	**92.25096**	**79.64288**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED
16' FROM EDGE	16	**70.54485**	**60.90338**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED
20' FROM EDGE	20	**48.83874**	**42.16388**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED
24' FROM EDGE	24	**27.13263**	**23.42438**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED
28' FROM EDGE	28	**5.426527**	**4.684875**	15/32 CDX, 8d @ 6" EN & BN, UNBLOCKED

Ga	5.5	
DIAPHRAGM DEFLECTION:	0.429277	in
CHORD FORCE:	2.281855	kip

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DATE: **6/8/20**

LATERAL DESIGN - SHEAR WALLS

PROJECT: **2020-20 ABEL INS OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON**

LINE: **NORTH WALL**

10d OR 8d: **8d** CDX OR STRUCT 1: **CDX**

WIND SHEAR ON WALL (0.6W):	V_W=	**3371.4**	pounds							
SEISMIC SHEAR ON WALL (0.7E):	V_E=	**2432.3**	pounds							
LENGTH:	L1=	**25**	ft	L2=	**0**	ft	L3=	**0**	ft	
HEIGHT:	H1=	**10**	ft	H2=	**0**	ft	H3=	**0**	ft	
OVERTURNING FORCE ABOVE:	P1=	**0**	pounds	P2=	**0**	pounds	P3=	**0**	pounds	
WIND UNIT SHEAR:	v_W=	135	plf	unblocked CDX with 8d @ 6" oc with studs at 16" oc						
SEISMIC UNIT SHEAR:	v_E=	97	plf	unblocked CDX with 8d @ 6" oc with studs at 16" oc						
OVERTURNING FORCES:	Pot1=	1376	pounds	Pot2=	0	pounds	Pot3=	0	pounds	
RESISTANCE TO OVERTURNING:	level trib.	**1**	ft	level trib.	**0**	ft	level trib.	**0**	ft	
level	**15**	113	pounds		0	pounds		0	pounds	
wall	**10**	750	pounds		0	pounds		0	pounds	
total		863	pounds		0	pounds		0	pounds	
NET OVERTURNING FORCE:		514	pounds		NO OT	pounds		NO OT	pounds	
	DTT2Z in 2-2x				NO HD			NO HD		
	deflection	0.1566	in		######	in		######	in	
10d TOE NAILS SPACING:	157.3	14	in							
LTP4 SPACING:	600	53	in							
A35 SPACING:	695	62	in	max 2:1 height ratio for unblocked shear walls						
1/2" DIA. A.B. SPACING:	944	84	in							
5/8" DIA. A.B. SPACING:	1376	122	in							
3/4" DIA. A.B. SPACING:	1920	171	in							
10d NAILS IN SILL	188.8	17	in							

LINE: **NORTH WALL OF VESTIBULE**

10d OR 8d: **8d** CDX OR STRUCT 1: **CDX**

WIND SHEAR ON WALL (0.6W):	V_W=	**3371.4**	pounds							
SEISMIC SHEAR ON WALL (0.7E):	V_E=	**2432.3**	pounds							
LENGTH:	L1=	**12**	ft	L2=	**0**	ft	L3=	**0**	ft	
HEIGHT:	H1=	**10**	ft	H2=	**0**	ft	H3=	**0**	ft	
OVERTURNING FORCE ABOVE:	P1=	**0**	pounds	P2=	**0**	pounds	P3=	**0**	pounds	
WIND UNIT SHEAR:	v_W=	281	plf	1-side CDX with 8d @ 6" oc						
SEISMIC UNIT SHEAR:	v_E=	203	plf	1-side CDX with 8d @ 6" oc						
OVERTURNING FORCES:	Pot1=	2932	pounds	Pot2=	0	pounds	Pot3=	0	pounds	
RESISTANCE TO OVERTURNING:	level trib.	**1**	ft	level trib.	**0**	ft	level trib.	**0**	ft	
level	**15**	54	pounds		0	pounds		0	pounds	
wall	**10**	360	pounds		0	pounds		0	pounds	
total		414	pounds		0	pounds		0	pounds	
NET OVERTURNING FORCE:		2518	pounds		NO OT	pounds		NO OT	pounds	
	HDU2 in 2-2x				NO HD			NO HD		
	deflection	0.2365	in		######	in		######	in	
10d TOE NAILS SPACING:	157.3	7	in							
LTP4 SPACING:	600	26	in							
A35 SPACING:	695	30	in							
1/2" DIA. A.B. SPACING:	944	40	in							
5/8" DIA. A.B. SPACING:	1376	59	in							
3/4" DIA. A.B. SPACING:	1920	82	in							
10d NAILS IN SILL	188.8	8	in							

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LATERAL DESIGN - SHEAR WALLS

PROJECT: **2020-20 ABEL INS OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON**

LINE: **SOUTH WALL**

10d OR 8d: **8d** CDX OR STRUCT 1: **CDX**

WIND SHEAR ON WALL (0.6W):	V_W=	**4318**	pounds							
SEISMIC SHEAR ON WALL (0.7E):	V_E=	**3350**	pounds							
LENGTH:	L1=	**4.5**	ft	L2=	**5.33**	ft	L3=	**5**	ft	
HEIGHT:	H1=	**10**	ft	H2=	**10**	ft	H3=	**10**	ft	
OVERTURNING FORCE ABOVE:	P1=	**0**	pounds	P2=	**0**	pounds	P3=	**0**	pounds	
WIND UNIT SHEAR:	v_W=	291	plf	1-side CDX with 8d @ 6" oc						
SEISMIC UNIT SHEAR:	v_E=	226	plf	1-side CDX with 8d @ 6" oc						
OVERTURNING FORCES:	Pot1=	3275	pounds	Pot2=	3213	pounds	Pot3=	3235	pounds	
RESISTANCE TO OVERTURNING:	level trib.	**1**	ft	level trib.	**1**	ft	level trib.	**1**	ft	
level	**15**	20	pounds		24	pounds		23	pounds	
wall	**10**	135	pounds		160	pounds		150	pounds	
total		155	pounds		184	pounds		173	pounds	
NET OVERTURNING FORCE:		3120	pounds		3029	pounds		3062	pounds	
		HDU4 in 2-2x			HDU2 in 2-2x			HDU2 in 2-2x		
	deflection	0.435	in		0.343	in		0.355	in	
10d TOE NAILS SPACING:	157.3	6	in							
LTP4 SPACING:	600	25	in							
A35 SPACING:	695	29	in							
1/2" DIA. A.B. SPACING:	944	39	in	multiply seismic by 2L1/H1						
5/8" DIA. A.B. SPACING:	1376	57	in							
3/4" DIA. A.B. SPACING:	1920	79	in							
10d NAILS IN SILL	188.8	8	in							

LINE: **SOUTH WALL OF VESTIBULE**

10d OR 8d: **8d** CDX OR STRUCT 1: **CDX**

WIND SHEAR ON WALL (0.6W):	V_W=	**4318**	pounds							
SEISMIC SHEAR ON WALL (0.7E):	V_E=	**3350**	pounds							
LENGTH:	L1=	**12**	ft	L2=	**0**	ft	L3=	**12**	ft	
HEIGHT:	H1=	**10**	ft	H2=	**0**	ft	H3=	**10**	ft	
OVERTURNING FORCE ABOVE:	P1=	**0**	pounds	P2=	**0**	pounds	P3=	**0**	pounds	
WIND UNIT SHEAR:	v_W=	180	plf	unblocked CDX with 8d @ 6" oc with studs at 16" oc						
SEISMIC UNIT SHEAR:	v_E=	140	plf	unblocked CDX with 8d @ 6" oc with studs at 16" oc						
OVERTURNING FORCES:	Pot1=	1877	pounds	Pot2=	0	pounds	Pot3=	1877	pounds	
RESISTANCE TO OVERTURNING:	level trib.	**1**	ft	level trib.	**0**	ft	level trib.	**12**	ft	
level	**15**	54	pounds		0	pounds		648	pounds	
wall	**10**	360	pounds		0	pounds		360	pounds	
total		414	pounds		0	pounds		1008	pounds	
NET OVERTURNING FORCE:		1463	pounds		NO OT	pounds		869	pounds	
		DTT2Z in 2-2x			NO HD			DTT2Z in 2-2x		
	deflection	0.25	in		#####	in		0.25	in	
10d TOE NAILS SPACING:	157.3	10	in							
LTP4 SPACING:	600	40	in							
A35 SPACING:	695	46	in							
1/2" DIA. A.B. SPACING:	944	63	in							
5/8" DIA. A.B. SPACING:	1376	92	in							
3/4" DIA. A.B. SPACING:	1920	128	in							
10d NAILS IN SILL	188.8	13	in							

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LATERAL DESIGN - SHEAR WALLS

PROJECT: **2020-20 ABEL INS OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON**

LINE: **WEST WALL EXISTING**

10d OR 8d: **8d** CDX OR STRUCT 1: **CDX**

WIND SHEAR ON WALL (0.6W):	V_W=	**5973**	pounds						
SEISMIC SHEAR ON WALL (0.7E):	V_E=	**5324**	pounds						
LENGTH:	L1=	**9.8**	ft	L2=	**11.5**	ft	L3=	**8.8**	ft
HEIGHT:	H1=	**10**	ft	H2=	**10**	ft	H3=	**10**	ft
OVERTURNING FORCE ABOVE:	P1=	**0**	pounds	P2=	**0**	pounds	P3=	**0**	pounds
WIND UNIT SHEAR:	v_W=	198	plf	unblocked CDX with 8d @ 6" oc with studs at 16" oc					
SEISMIC UNIT SHEAR:	v_E=	177	plf	1-side CDX with 8d @ 6" oc					
OVERTURNING FORCES:	Pot1=	2091	pounds	Pot2=	2075	pounds	Pot3=	2104	pounds
RESISTANCE TO OVERTURNING:	level trib.	**6**	ft	level trib.	**6**	ft	level trib.	**6**	ft
level	**15**	265	pounds		311	pounds		238	pounds
wall	**10**	294	pounds		345	pounds		264	pounds
total		559	pounds		656	pounds		502	pounds
NET OVERTURNING FORCE:		1532	pounds		1419	pounds		1602	pounds
	DTT2Z in 2-2x			DTT2Z in 2-2x			DTT2Z in 2-2x		
	deflection	0.289	in		0.269	in		0.305	in
10d TOE NAILS SPACING:	157.3	10	in						
LTP4 SPACING:	600	36	in						
A35 SPACING:	695	42	in						
1/2" DIA. A.B. SPACING:	944	57	in						
5/8" DIA. A.B. SPACING:	1376	83	in						
3/4" DIA. A.B. SPACING:	1920	116	in						
10d NAILS IN SILL	188.8	11	in						

LINE: **EAST WALL CONFERENCE**

10d OR 8d: **8d** CDX OR STRUCT 1: **CDX**

WIND SHEAR ON WALL (0.6W):	V_W=	**5973**	pounds						
SEISMIC SHEAR ON WALL (0.7E):	V_E=	**5324**	pounds						
LENGTH:	L1=	**8**	ft	L2=	**0**	ft	L3=	**6**	ft
HEIGHT:	H1=	**10**	ft	H2=	**0**	ft	H3=	**10**	ft
OVERTURNING FORCE ABOVE:	P1=	**0**	pounds	P2=	**0**	pounds	P3=	**0**	pounds
WIND UNIT SHEAR:	v_W=	427	plf	1-side CDX with 8d @ 4" oc					
SEISMIC UNIT SHEAR:	v_E=	380	plf	1-side CDX with 8d @ 3" oc					
OVERTURNING FORCES:	Pot1=	4551	pounds	Pot2=	0	pounds	Pot3=	4654	pounds
RESISTANCE TO OVERTURNING:	level trib.	**12.5**	ft	level trib.	**0**	ft	level trib.	**12.5**	ft
level	**15**	450	pounds		0	pounds		338	pounds
wall	**10**	240	pounds		0	pounds		180	pounds
total		690	pounds		0	pounds		518	pounds
NET OVERTURNING FORCE:		3861	pounds		NO OT	pounds		4137	pounds
	HDU4 in 2-2x				NO HD		HDU4 in 2-2x		
	deflection	0.344	in		#####	in		0.397	in
10d TOE NAILS SPACING:	157.3	4	in						
LTP4 SPACING:	600	17	in	3x OR 2-2x FRAMING AT PANEL EDGES					
A35 SPACING:	695	20	in						
1/2" DIA. A.B. SPACING:	944	27	in						
5/8" DIA. A.B. SPACING:	1376	39	in						
3/4" DIA. A.B. SPACING:	1920	54	in						
10d NAILS IN SILL	188.8	5	in						

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LATERAL DESIGN - PERFORATED SHEAR WALLS

PROJECT: **2020-20 ABEL INS OFFICE REMODEL, 875 HWY 101, FLORENCE, OREGON**
LINE: **EAST WALL OFFICE**

10d OR 8d: **8d** CDX OR STRUCT 1: **CDX**

WIND SHEAR ON WALL (0.6W):	Vw=	**5973**	pounds							
SEISMIC SHEAR ON WALL (0.7E):	Ve=	**5323.5**	pounds							
TOTAL WALL LENGTH:	L=	**21.5**	ft							
LENGTH:	L1=	**4.33**	ft	L2=	**8.33**	ft	L3=	**4.833**	ft	
HEIGHT:	H1=	**10**	ft	H2=	**10**	ft	H3=	**10**	ft	
OPENING HEIGHT:	Ho1=	**5**	ft	Ho2=	**5**	ft	Ho3=	**5**	ft	
OVERTURNING FORCE ABOVE:	P1=	**0**	pounds	P2=	**0**	pounds	P3=	**0**	pounds	
HEIGHT/LENGTH RATIO:	H1/L1=	2.3095		H2/L2=	1.2005		H3/L3=	2.0691		
MAX OPENING HEIGHT RATIO:		50%								
PERCENT FULL HEIGHT SHEATHING:		81%								
OPENING ADJUSTMENT FACTOR:	Co=	0.916		1	0.91	0.83	0.77	0.71		
WIND UNIT SHEAR:	v_w=	373	plf	1-side CDX with 8d @ 4" oc						
SEISMIC UNIT SHEAR	v_E=	332	plf	1-side CDX with 8d @ 4" oc						
OVERTURNING FORCES:	Pot=	3728	pounds							
RESISTANCE TO OVERTURNING:	level trib.	**6**	ft							
	level	**15**	581	pounds						
	wall	**10**	645	pounds						
	total		1226	pounds						
NET OVERTURNING FORCE:			2502	pounds						

HDU2 in 2-2x

	deflection	0.2533	in	
10d TOE NAILS SPACING:	157.3	5	in	
LTP4 SPACING:	600	19	in	
A35 SPACING:	695	22	in	3x OR 2-2x FRAMING AT PANEL EDGES
1/2" DIA. A.B. SPACING:	944	30	in	
5/8" DIA. A.B. SPACING:	1376	44	in	multiply seismic by 2L1/H1
3/4" DIA. A.B. SPACING:	1920	62	in	
10d NAILS IN SILL	188.8	6	in	multiply shear by 2L3/H3

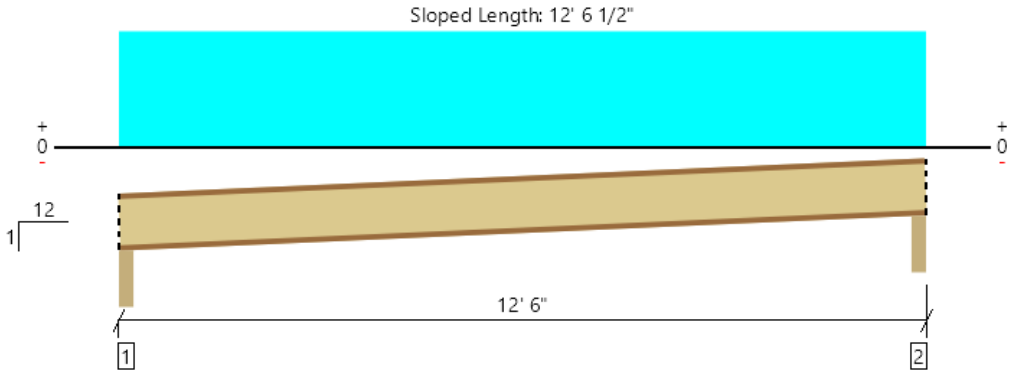
FORTE WEB

MEMBER REPORT

PASSED

Level, Roof: Joist

1 piece(s) 14" TJI® 110 @ 24" OC



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Member Length : 12' 7 11/16"

System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 1/12

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	501 @ 2 1/2"	1581 (3.50")	Passed (32%)	1.15	1.0 D + 1.0 S (All Spans)
Shear (lbs)	477 @ 3 1/2"	2139	Passed (22%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1463 @ 6' 3"	4301	Passed (34%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.104 @ 6' 3"	0.606	Passed (L/999+)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.164 @ 6' 3"	0.808	Passed (L/885)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)

- Deflection criteria: LL (L/240) and TL (L/180).
- Top Edge Bracing (Lu): Top compression edge must be braced at 4' 5" o/c based on loads applied, unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 12' 7" o/c based on loads applied, unless detailed otherwise.

Supports	Bearing Length			Loads to Supports (lbs)					Accessories
	Total	Available	Required	Dead	Snow	Wind	Seismic	Total	
1 - Beveled Plate - DF	3.50"	3.50"	1.75"	251	250	538	63/-63	1102/-63	Blocking
2 - Beveled Plate - DF	3.50"	3.50"	1.75"	251	250	538	63/-63	1102/-63	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
1 - Uniform (PSF)	0 to 12' 6"	24"	20.0	20.0	43.0	5.0	Default Load

Member Notes

OFFICE ROOF RAFTER

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The product application, input design loads, dimensions and support information have been provided by ATG

ForteWEB Software Operator	Job Notes
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6/9/2020 2:47:04 PM UTC

ForteWEB v2.4, Engine: V8.0.1.5, Data: V7.3.2.0

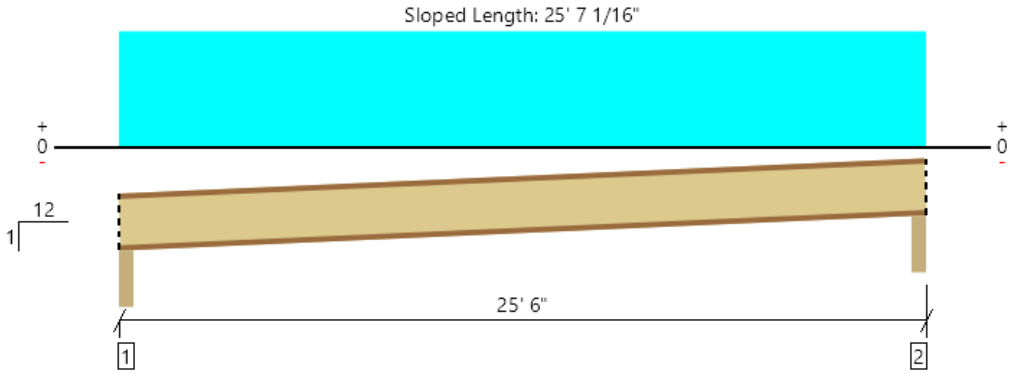
File Name: 2020-20 Abel CCA

FORTE WEB

MEMBER REPORT

PASSED

Level, Roof: Joist Conf
1 piece(s) 14" TJI® 560 @ 24" OC



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Member Length : 25' 8 1/4"

System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 1/12

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1022 @ 2 1/2"	1984 (3.50")	Passed (52%)	1.15	1.0 D + 1.0 S (All Spans)
Shear (lbs)	998 @ 3 1/2"	2749	Passed (36%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	6303 @ 12' 9"	12966	Passed (49%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.736 @ 12' 9"	1.259	Passed (L/410)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	1.166 @ 12' 9"	1.678	Passed (L/259)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)

- Deflection criteria: LL (L/240) and TL (L/180).
- Top Edge Bracing (Lu): Top compression edge must be braced at 6' 7" o/c based on loads applied, unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 25' 7" o/c based on loads applied, unless detailed otherwise.

Supports	Bearing Length			Loads to Supports (lbs)					Accessories
	Total	Available	Required	Dead	Snow	Wind	Seismic	Total	
1 - Beveled Plate - DF	3.50"	3.50"	1.75"	512	510	1097	128/-128	2247/-128	Blocking
2 - Beveled Plate - DF	3.50"	3.50"	1.75"	512	510	1097	128/-128	2247/-128	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
1 - Uniform (PSF)	0 to 25' 6"	24"	20.0	20.0	43.0	5.0	Default Load

Member Notes

CONFERENCE ROOF RAFTER

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The product application, input design loads, dimensions and support information have been provided by ATG

ForteWEB Software Operator	Job Notes
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File Name: 2020-20 Abel CCA

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PROJECT: **2020-20** **ABEL INSURANCE ADDITION, 875 HWY 101, FLORENCE, OREGON**
MEMBER LOCATION: **ROOF BEAM AT SOUTH ADDITION OFFICE**
LUMBER DESIGN FOR: **GLB - GLUE LAMINATED BEAM - 24F V4**

Fb	**2400**	psi	PROPOSED WIDTH:	**5.125**	in		
Fv	**240**	psi	PROPOSED DEPTH:	**13.5**	in		
FcL	**650**	psi	SPAN:	**14.75**	ft		
E	**1800**	ksi	TRIBUTARY WIDTH:	**25.25**	ft		
			LIVE LOAD (psf OVER TRIB WIDTH):	**0**	psf		
			SNOW LOAD (psf OVER TRIB WIDTH):	**20**	psf		
			DEAD LOAD (psf OVER TRIB WIDTH):	**20**	psf		
			BEAM SELF WEIGHT / ADD'L LOADS:	**40**	plf	16.8	
2000' radius camber:			LIVE POINT LOAD (pounds):	**0**	lb		
0.1631719			SNOW POINT LOAD (pounds):	**0**	lb		
minimum roof camber:			DEAD POINT LOAD (pounds):	**0**	lb		
0.460			DISTANCE FROM END TO POINT LOAD:	**1**	ft		
minimum floor camber:			REPETITIVE MEMBER FACTOR: Cr:	**1**			
0.307			DURATION FACTOR Cd:	**1.15**			
			VOLUME FACTOR: Cv:	1			

CALCULATIONS: LOAD FACTORS (product from above): 1.15

combined loads:	w:	1050	505	plf	P:	0	0	lb	
moment:	M1:	28555	lb ft		M2:	7219	lb ft		
reaction:	R1:	7744	lb		R2:	7744	lb		
shear:	V1:	6563	lb		V2:	6563	lb		
Minimum flexural section Sx:		124.15	in3	5.125	x	12.06	in min		
Minimum area for shear:		35.67	in2	5.125	x	6.96	in min		
Minimum total load Ix:		842	in4	5.125	x	12.54	in min	(L/240 TL)	0.591
Minimum live load Ix:		608	in4	5.125	x	11.25	in min	(L/360 LL)	0.284
Minimum bearing area:		11.91	in2	5.125	x	2.32	in min		

BEAM SELECTION: ***5.125 x 13.5 24F-V4 GLB***

MEMBER LOCATION: **ROOF BEAM AT NORTH ADDITION CONFERENCE**
LUMBER DESIGN FOR: **GLB - GLUE LAMINATED BEAM - 24F V4**

Fb	**2400**	psi	PROPOSED WIDTH:	**6.75**	in		
Fv	**240**	psi	PROPOSED DEPTH:	**18**	in		
FcL	**650**	psi	SPAN:	**21.5**	ft		
E	**1800**	ksi	TRIBUTARY WIDTH:	**25.25**	ft		
			LIVE LOAD (psf OVER TRIB WIDTH):	**0**	psf		
			SNOW LOAD (psf OVER TRIB WIDTH):	**20**	psf		
			DEAD LOAD (psf OVER TRIB WIDTH):	**20**	psf		
			BEAM SELF WEIGHT / ADD'L LOADS:	**30**	plf	29.5	
2000' radius camber:			LIVE POINT LOAD (pounds):	**0**	lb		
0.3466875			SNOW POINT LOAD (pounds):	**0**	lb		
minimum roof camber:			DEAD POINT LOAD (pounds):	**0**	lb		
0.653			DISTANCE FROM END TO POINT LOAD:	**1**	ft		
minimum floor camber:			REPETITIVE MEMBER FACTOR: Cr:	**1**			
0.436			DURATION FACTOR Cd:	**1.15**			
			VOLUME FACTOR: Cv:	0.931983			

CALCULATIONS: LOAD FACTORS (product from above): 1.07178

combined loads:	w:	1040	505	plf	P:	0	0	lb	
moment:	M1:	60093	lb ft		M2:	10660	lb ft		
reaction:	R1:	11180	lb		R2:	11180	lb		
shear:	V1:	9620	lb		V2:	9620	lb		
Minimum flexural section Sx:		280.34	in3	6.75	x	15.79	in min		
Minimum area for shear:		56.10	in2	6.75	x	8.31	in min		
Minimum total load Ix:		2584	in4	6.75	x	16.62	in min	(L/240 TL)	0.847
Minimum live load Ix:		1882	in4	6.75	x	14.96	in min	(L/360 LL)	0.411
Minimum bearing area:		17.20	in2	6.75	x	2.55	in min		

BEAM SELECTION: ***6.75 x 18 24F-V4 GLB***

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PROJECT: **2020-20** **ABEL INSURANCE ADDITION, 875 HWY 101, FLORENCE, OREGON**
MEMBER LOCATION: **TYPICAL ADDITION WINDOW HEADER**
LUMBER DESIGN FOR: **Douglas Fir, No. 2**

Fb	**875**	psi	PROPOSED WIDTH:	**5.5**	in
Fv	**170**	psi	PROPOSED DEPTH:	**7.5**	in
FcL	**625**	psi	SPAN:	**6.125**	ft
E	**1300**	ksi	TRIBUTARY WIDTH:	**12.25**	ft
			LIVE LOAD (psf OVER TRIB WIDTH):	**0**	psf
			SNOW LOAD (psf OVER TRIB WIDTH):	**20**	psf
			DEAD LOAD (psf OVER TRIB WIDTH):	**20**	psf
			BEAM SELF WEIGHT / ADD'L LOADS:	**20**	plf
			LIVE POINT LOAD (pounds):	**0**	lb
			SNOW POINT LOAD (pounds):	**0**	lb
			DEAD POINT LOAD (pounds):	**0**	lb
			DISTANCE FROM END TO POINT LOAD:	**1**	ft
			REPETITIVE MEMBER FACTOR: Cr:	**1**	
			DURATION FACTOR Cd:	**1.15**	
			SIZE FACTOR: CF:	1	

10.0

CALCULATIONS:										
	LOAD FACTORS (product from above):						1.15			
combined loads:	w:	510	245	plf	P:	0	0	lb		
moment:	M1:	2392	lb ft		M2:	1307	lb ft			
reaction:	R1:	1562	lb		R2:	1562	lb			
shear:	V1:	1243	lb		V2:	1243	lb			
Minimum flexural section Sx:		28.52	in3	5.5	x	5.58	in min			
Minimum area for shear:		9.54	in2	5.5	x	1.73	in min			
Minimum total load Ix:		41	in4	5.5	x	4.46	in min	(L/240 TL)	0.064	
Minimum live load Ix:		29	in4	5.5	x	4.00	in min	(L/360 LL)	0.031	
Minimum bearing area:		2.50	in2	5.5	x	0.45	in min			

BEAM SELECTION: ***6x8 Douglas Fir, No. 2***

MEMBER LOCATION: **ENTRY ROOF BEAMS**
LUMBER DESIGN FOR: **Douglas Fir, No. 2**

Fb	**900**	psi	PROPOSED WIDTH:	**3**	in
Fv	**180**	psi	PROPOSED DEPTH:	**14**	in
FcL	**625**	psi	SPAN:	**7.125**	ft
E	**1600**	ksi	TRIBUTARY WIDTH:	**25.25**	ft
			LIVE LOAD (psf OVER TRIB WIDTH):	**0**	psf
			SNOW LOAD (psf OVER TRIB WIDTH):	**20**	psf
			DEAD LOAD (psf OVER TRIB WIDTH):	**20**	psf
			BEAM SELF WEIGHT / ADD'L LOADS:	**20**	plf
			LIVE POINT LOAD (pounds):	**0**	lb
			SNOW POINT LOAD (pounds):	**0**	lb
			DEAD POINT LOAD (pounds):	**0**	lb
			DISTANCE FROM END TO POINT LOAD:	**0**	ft
			REPETITIVE MEMBER FACTOR: Cr:	**1**	
			DURATION FACTOR Cd:	**1.15**	
			SIZE FACTOR: CF:	1	

10.2

CALCULATIONS:										
	LOAD FACTORS (product from above):						1.15			
combined loads:	w:	1030	505	plf	P:	0	0	lb		
moment:	M1:	6536	lb ft		M2:	0	lb ft			
reaction:	R1:	3669	lb		R2:	3669	lb			
shear:	V1:	2468	lb		V2:	2468	lb			
Minimum flexural section Sx:		75.78	in3	3	x	12.31	in min			
Minimum area for shear:		17.88	in2	3	x	5.96	in min			
Minimum total load Ix:		105	in4	3	x	7.48	in min	(L/240 TL)	0.054	
Minimum live load Ix:		77	in4	3	x	6.76	in min	(L/360 LL)	0.027	
Minimum bearing area:		5.87	in2	3	x	1.96	in min			

BEAM SELECTION: ***(2) 2x14 Douglas Fir, No. 2***

Boise Cascade

Single 2 x 6 DFL Stud

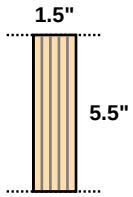
PASSED

ST01

BC CALC® Member Report | Dry | 09-07-08 | 16 OCS | Repetitive | June 9, 2020 08:14:00

Build 7555

Job name:	2020	File name:	2020
Address:		Description:	TYPICAL BEARING WALL STUD
City, State, Zip:		Specifier:	
Customer:		Designer:	Allan Goffe
Code reports:	WCLIB/WWPA	Company:	

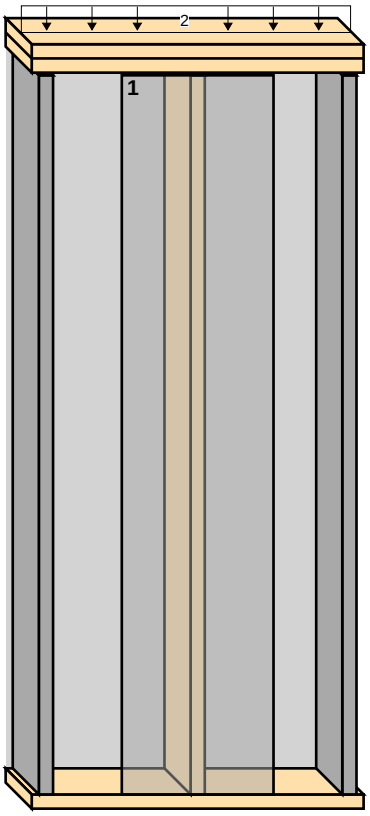


Lateral Reaction Summary (lbs)

Bearing	Wind	Connection
Top Plate	290	
Bottom Plate	290	

Load Summary

Tag	Description	Load Type	Start	End	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%
1	Wind Load	Area F/B (lb/ft²)	00-00-00	09-07-08				45	
2	Roof Load	Unf. Lin. (lb/ft)	00-00-00	00-00-00		256	255	545	



Bracing

	Elevation	Sheathing
Top	09-07-08	Left-Right
Base	00-00-00	

Controls Summary

	Value	% Allowable	Duration	Case
Front-Back Bending	419 ft-lbs	51.6%	160%	3
Front-Back Shear	174 lbs	11.0%	n\a	3
Front-Back Defl.	L/688 (0.168")	26.2%	n\a	2
Front-Back Max. Defl.	0.168"	16.8%	n\a	2
Axial Compression	942 lbs	15.0%	160%	5
Axial Compression and Bending Front-Back	n\a	59.1%	160%	3
Slenderness Ratio	21.00	42.0%	n\a	0

Bearing Supports

	Size	Value	%Allowable	Duration	Material
Top Plate	Double 2x	942 lbs	26.9%	115%	Spruce-Pine-Fir
Bottom Plate	2x	942 lbs	26.9%	115%	Spruce-Pine-Fir

Notes

Design meets arbitrary (1") Maximum Total load deflection criteria.(Strong Axis)

Design meets User specified (L/180) Total load deflection criteria.(Strong Axis)

BC Calc does not perform shear wall or connection design for in-plane load transfer.

The analysis of solid sawn wood members is in accordance with the NDS and is limited to the output shown above. All other support and design for these products, including but not limited to notching, connections, installation, and engineer/architect certification is the responsibility of the project's design professional of record.

BC CALC® analysis is based on IBC 2018.

Wind load calculated based on the following: ASCE 7-16 Section 30.3; Ultimate Wind Speed: 130 mph; Risk Category: II; Exposure Category: D; Mean Roof Height: 15-00-00; Topographic Factor 1.0.

Disclosure

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Project Title: ABEL INSURANCE
Engineer: ATG
Project ID: 2020-20
Project Descr: OFFICE ADDITION & REMODEL

Printed: 11 JUN 2020, 3:44PM

Wall Footing

Lic. # : KW-06009472 — ACE Engineering LLC

DESCRIPTION: 1'-6" THICKNED SLAB EDGE FOOTING

Code References

Calculations per ACI 318-08, IBC 2009, CBC 2010, ASCE 7-10
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	2.50 ksi
fy : Rebar Yield	=	40.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.50 : 1
Min. Sliding Safety Factor	=	1.50 : 1
AutoCalc Footing Weight as DL	:	Yes

Soil Design Values

Allowable Soil Bearing	=	1.50 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	100.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Reference Depth below Surface	=	1.0 ft
Allow. Pressure Increase per foot of depth	=	ksf
when base footing is below	=	ft

Increases based on footing Width

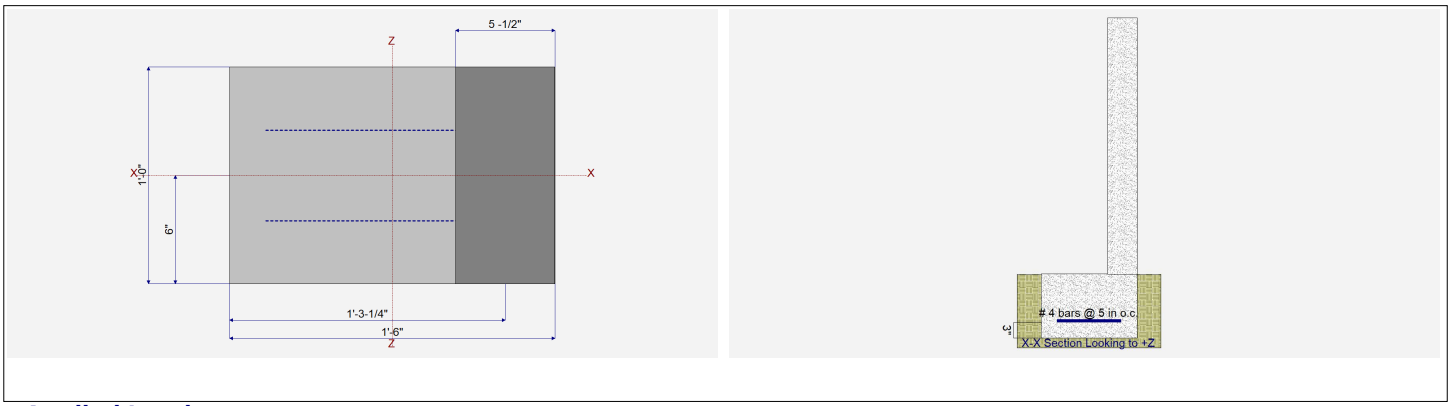
Allow. Pressure Increase per foot of width	=	ksf
when footing is wider than	=	ft

Adjusted Allowable Bearing Pressure = 1.50 ksf

Dimensions

Footing Width	=	1.5 ft	Footing Thickness	=	12.0 in	Bars along X-X Axis	
Wall Thickness	=	5.50 in	Rebar Centerline to Edge of Concrete...			Bar spacing	= 5.00
Wall center offset from center of footing	=	6.25 in	at Bottom of footing	=	3.0 in	Reinforcing Bar Size	= # 4

Reinforcing



Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	0.3450			0.2450				k
OB : Overburden	=	0.010		0.050					ksf
V-x	=								k
M-zz	=								k-ft
Vx applied	=	in above top of footing							

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Wall Footing

Lic. # : KW-06009472 — ACE Engineering LLC

DESCRIPTION: 1'-6" THICKNED SLAB EDGE FOOTING

DESIGN SUMMARY

Design OK

	Factor of Safety	Item	Applied	Capacity	Governing Load Combination
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift

	Utilization Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9625	Soil Bearing	1.444 ksf	1.50 ksf	+D+S
PASS	0.0	Z Flexure (+X)	0.0 k-ft	0.0 k-ft	No Moment
PASS	0.003435	Z Flexure (-X)	0.04265 k-ft	12.418 k-ft	+0.6750D
PASS	n/a	1-way Shear (+X)	0.0 psi	75.0 psi	n/a
PASS	0.02935	1-way Shear (-X)	2.201 psi	75.0 psi	+1.20D+L+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Actual Soil Bearing Stress -X	Actual Soil Bearing Stress +X	Actual / Allowable Ratio
, D Only	1.50 ksf	3.764 in	0.0 ksf	0.8686 ksf	0.579
, +D+L	1.50 ksf	3.450 in	0.0 ksf	0.8944 ksf	0.596
, +D+S	1.50 ksf	4.508 in	0.0 ksf	1.444 ksf	0.963
, +D+0.750L	1.50 ksf	3.523 in	0.0 ksf	0.8874 ksf	0.592
, +D+0.750L+0.750S	1.50 ksf	4.153 in	0.0 ksf	1.303 ksf	0.868
, +0.60D	1.50 ksf	3.764 in	0.0 ksf	0.5212 ksf	0.347

Overturning Stability

Units : k-ft

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status

Footing Has NO Overturning

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
, +1.40D	0.08846	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.40D	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+1.60L	0.1484	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+1.60L	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+1.60L+0.50S	0.1444	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+1.60L+0.50S	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+L	0.1211	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+L	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D	0.07583	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+L+1.60S	0.1119	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+L+1.60S	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+1.60S	0.06838	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+1.60S	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+L+0.50S	0.1175	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.20D+L+0.50S	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +0.90D	0.05687	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +0.90D	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.425D+L+0.20S	0.1337	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +1.425D+L+0.20S	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +0.6750D	0.04265	-X	Bottom	0.2592	Min Temp %	0.48	12.418	OK
, +0.6750D	0	+X	Bottom	0.2592	Min Temp %	0.48	12.418	OK

One Way Shear

Units : k

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status

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Wall Footing

Lic. # : KW-06009472 — ACE Engineering LLC

DESCRIPTION: 1'-6" THICKNED SLAB EDGE FOOTING

One Way Shear

Units : k

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D+1.60L+0.50S	1.843 psi	0 psi	1.843 psi	75 psi	0.02458	OK
+1.20D+L	1.475 psi	0 psi	1.475 psi	75 psi	0.01967	OK
+1.20D	1.24 psi	0 psi	1.24 psi	75 psi	0.01653	OK
+1.20D+L+1.60S	2.201 psi	0 psi	2.201 psi	75 psi	0.02935	OK
+1.20D+1.60S	1.966 psi	0 psi	1.966 psi	75 psi	0.02621	OK
+1.20D+L+0.50S	1.702 psi	0 psi	1.702 psi	75 psi	0.02269	OK
+0.90D	0.9298 psi	0 psi	0.9298 psi	75 psi	0.0124	OK
+1.425D+L+0.20S	1.798 psi	0 psi	1.798 psi	75 psi	0.02398	OK
+0.6750D	0.6974 psi	0 psi	0.6974 psi	75 psi	0.009298	OK

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DATE: **06/11/20**

RECTANGULAR FOOTING DESIGN

PROJECT: **2020-20 ABEL INSURANCE, 875 HWY 101, FLORENCE, OR**

FOOTING NUMBER/LOCATION: **SPREAD FOOTING AT MID OF ROOF BEAM OVER OFFICE**

	DEAD	LIVE	SNOW	0.6 WIND	0.7 SEISMIC	
LIVE LOAD, RLL	**7.99125**	**0**	**7.44875**	**0**	**0**	kip
TOTAL LOAD, R	**15.440**	kip				

SOIL BEARING CAPACITY, qA	**1250**	psf	
OVERALL THICKNESS OF FTG, t	**12**	in	
DEPTH TO REINF, d	**8.75**	in	
COLUMN DIMENSION, D	**5.5**	in	
COLUMN DIMENSION, W	**5.5**	in	
CONC STRENGTH, f'c	**2500**	psi	
REINFORCING STRENGTH, fy	**60**	ksi	
AREA OF FOOTING STEEL, As	**1.00**	in^2	0.950227

CHECK BEARING CAPACITY AND DETERIMINE FOOTING DIMENSIONS

PROVIDE FOOTING WIDTH OF, B:	**3.666**	ft	
PROVIDE FOOTING LENGTH OF, L:	**3.666**	ft	
PROVIDE FOOTING AREA, A	13.43956	ft^2	B L
MINIMUM FOOTING AREA, Areq	12.35	ft^2	R/qA
	O.K.		
ULTIMATE LOAD, Ru	21.51	kip	
ULTIMATE SOIL PRESSURE, qu	1600	psf	Ru/B*L

ONE WAY SHEAR

Vu	5.13	kip	qu B (L/2-D/2-d)
oVn	32.72	kip	0.85 2 (f'c)^0.5 W d
	O.K.		

TWO WAY SHEAR

Vu	19.25	kip	qu (B L - D W)
CRITICAL PERIMETER bo	57	in	
INTERIOR COLUMN (VERIFY) as	**40**		
oVn	127.18	kip	0.85 (2+4/Bc) (f'c)^0.5 bo d
	172.55	kip	0.85 (2+as/b0/d) (f'c)^0.5 bo d
	84.79	kip	0.85 4 (f'c)^0.5 bo d
	O.K.		

FLEXURE

Mu	7.55	kip ft	qu B (L/2-D/2-d)
a	0.64	in	As fy / .85 f'c B
oMn	37.93	kip ft	0.9 As fy (d-a/2)
	O.K.		

ACE ENGINEERING LLC
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DATE: **06/11/20**

RECTANGULAR FOOTING DESIGN

PROJECT: **2020-20 ABEL INSURANCE, 875 HWY 101, FLORENCE, OR**
FOOTING NUMBER/LOCATION: **SPREAD FOOTING AT ENDS OF ROOF BEAM OVER OFFICE**

	DEAD	LIVE	SNOW	0.6 WIND	0.7 SEISMIC	
LIVE LOAD, RLL	**7.790625**	**0**	**7.259375**	**0**	**0**	kip
TOTAL LOAD, R	**15.050**	kip				

SOIL BEARING CAPACITY, qA	**1250**	psf	
OVERALL THICKNESS OF FTG, t	**12**	in	
DEPTH TO REINF, d	**8.75**	in	
COLUMN DIMENSION, D	**5.5**	in	
COLUMN DIMENSION, W	**5.5**	in	
CONC STRENGTH, f'c	**2500**	psi	
REINFORCING STRENGTH, fy	**60**	ksi	
AREA OF FOOTING STEEL, As	**1.00**	in^2	0.950227

CHECK BEARING CAPACITY AND DETERIMINE FOOTING DIMENSIONS

PROVIDE FOOTING WIDTH OF, B:	**3.666**	ft	
PROVIDE FOOTING LENGTH OF, L:	**3.666**	ft	
PROVIDE FOOTING AREA, A	13.43956	ft^2	B L
MINIMUM FOOTING AREA, Areq	12.04	ft^2	R/qA
	O.K.		
ULTIMATE LOAD, Ru	20.96	kip	
ULTIMATE SOIL PRESSURE, qu	1560	psf	Ru/B*L

ONE WAY SHEAR

Vu	5.00	kip	qu B (L/2-D/2-d)
oVn	32.72	kip	0.85 2 (f'c)^0.5 W d
	O.K.		

TWO WAY SHEAR

Vu	18.76	kip	qu (B L - D W)
CRITICAL PERIMETER bo	57	in	
INTERIOR COLUMN (VERIFY) as	**40**		
oVn	127.18	kip	0.85 (2+4/Bc) (f'c)^0.5 bo d
	172.55	kip	0.85 (2+as/b0/d) (f'c)^0.5 bo d
	84.79	kip	0.85 4 (f'c)^0.5 bo d
	O.K.		

FLEXURE

Mu	7.35	kip ft	qu B (L/2-D/2-d)
a	0.64	in	As fy / .85 f'c B
oMn	37.93	kip ft	0.9 As fy (d-a/2)
	O.K.		

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DATE: **06/11/20**

RECTANGULAR FOOTING DESIGN

PROJECT: **2020-20 ABEL INSURANCE, 875 HWY 101, FLORENCE, OR**
FOOTING NUMBER/LOCATION: **SPREAD FOOTING AT ENDS OF ROOF BEAM OVER CONF**

	DEAD	LIVE	SNOW	0.6 WIND	0.7 SEISMIC	
LIVE LOAD, RLL	**5.85125**	**0**	**5.42875**	**0**	**0**	kip
TOTAL LOAD, R	**11.280**	kip				

SOIL BEARING CAPACITY, qA	**1250**	psf	
OVERALL THICKNESS OF FTG, t	**12**	in	
DEPTH TO REINF, d	**8.75**	in	
COLUMN DIMENSION, D	**5.5**	in	
COLUMN DIMENSION, W	**5.5**	in	
CONC STRENGTH, f'c	**2500**	psi	
REINFORCING STRENGTH, fy	**60**	ksi	
AREA OF FOOTING STEEL, As	**1.00**	in^2	0.950227

CHECK BEARING CAPACITY AND DETERIMINE FOOTING DIMENSIONS

PROVIDE FOOTING WIDTH OF, B:	**3.666**	ft	
PROVIDE FOOTING LENGTH OF, L:	**3.666**	ft	
PROVIDE FOOTING AREA, A	13.43956	ft^2	B L
MINIMUM FOOTING AREA, Areq	9.02	ft^2	R/qA
	O.K.		
ULTIMATE LOAD, Ru	15.71	kip	
ULTIMATE SOIL PRESSURE, qu	1169	psf	Ru/B*L

ONE WAY SHEAR

Vu	3.75	kip	qu B (L/2-D/2-d)
oVn	32.72	kip	0.85 2 (f'c)^0.5 W d
	O.K.		

TWO WAY SHEAR

Vu	14.06	kip	qu (B L - D W)
CRITICAL PERIMETER bo	57	in	
INTERIOR COLUMN (VERIFY) as	**40**		
oVn	127.18	kip	0.85 (2+4/Bc) (f'c)^0.5 bo d
	172.55	kip	0.85 (2+as/b0/d) (f'c)^0.5 bo d
	84.79	kip	0.85 4 (f'c)^0.5 bo d
	O.K.		

FLEXURE

Mu	5.51	kip ft	qu B (L/2-D/2-d)
a	0.64	in	As fy / .85 f'c B
oMn	37.93	kip ft	0.9 As fy (d-a/2)
	O.K.		