Structural Calculations
For
AOCE Addition
1243 Marion Street NE
Salem, Oregon
(Job #240249)

(Contact: Dan Green)

Client: Cravenho Construction
P. O. Box 20492
Keizer, Oregon 97307

Code: 2021 IBC / 2022 OSSC

Index:

If stamp does not appear in blue, calculations are invalid for building permit.

LIMITATIONS: Engineer was retained in a limited capacity for this project. Design is based upon information provided by the client, who is solely responsible for accuracy of the same. No responsibility and/or liability is assumed by, or is to be assigned to the engineer for items beyond that shown on these sheets.

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON
(503) 391-2309

FILE NO. _____ SHEET NO. 1.0
DESIGNER _____ DATE 3/5/24
CLIENT _____
PROJECT _____

AOCE ADDITION

LOCATION: 1243 MARION STREET NE, SALEM, OREGON 97301

(E) 2-STORY STRUCTURE - REMOVING AN (E) INTERIOR POST AND MODIFING (E) LOWER EXTERIOR WALL

Roof SL = 25 PSF DL = 17 PSF

WALL DL = 10 PSF

FLOOR LL = 50 PSF (OFFICE) DL = 15 PSF (WAS ORIGINALLY A HOUSE, NOW OFFICE'S)

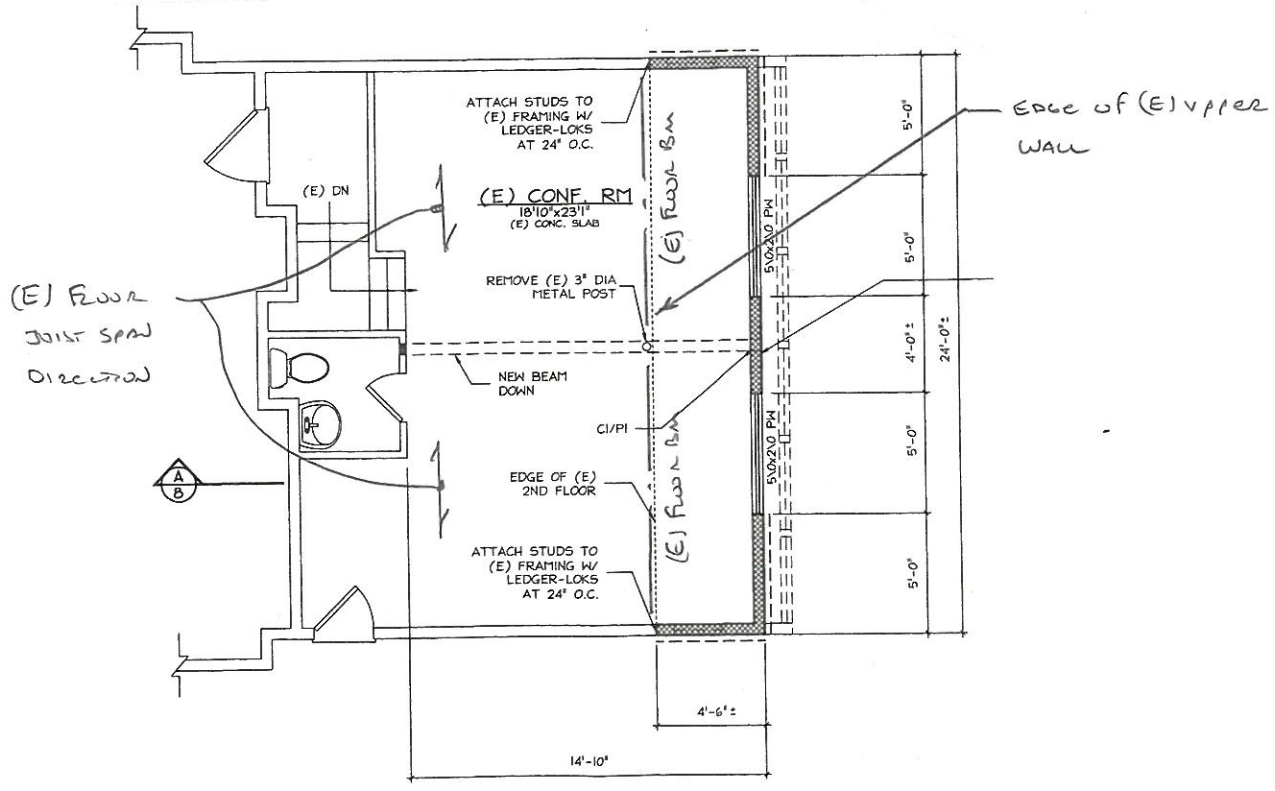
120 MPH (ULT) WIND SPEED, EXP B

SEISMIC CATEGORY D

ASSUME 1500 PSF ALLOWABLE SOIL BEARING

ORIGINAL DWGS BY: KEITH CHANSMAN ARCHITECT (NO DATE)

ORIGINAL DWGS NAMED: Remodel & Addition Bockleman Residence



DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240 249 SHEET NO. 1/

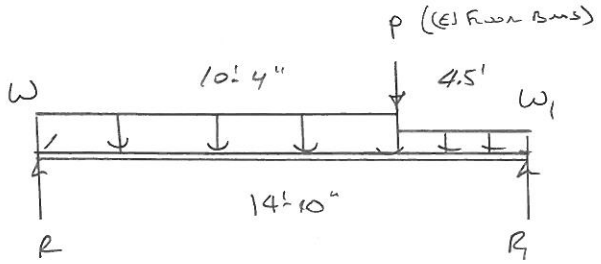
DESIGNER OSG DATE 2/29/24

CLIENT CRAVENHO CONSTRUCTION

PROJECT AOCE Addition

LOOK AT REMOVING (E) 3" DIA METAL POST

NEW BEAM



W_1 (NEW ROOF)

DL = 17 (2) = 34 PLF

SL = 25 (2) = 50 PLF

W → DUE TO (E) ROOF BEING STICK FRAMED TAKE HALF OF ROOF WIDTH AND APPLY TO NEW BEAM

(E) ROOF DL = 17 (24/2) = 204 PLF

(E) ROOF SL = 25 (24/2) = 300 PLF

(E) WALL DL = 10 (10) = 100 PLF

(E) FLOOR DL = 15 (24/2) = 180 PLF

(E) FLOOR LL = 50 (24/2) = 600 PLF

ΣDL = 484 PLF

ΣLL = 600 PLF

ΣSL = 300 PLF

1384 PLF

P → (E) ROOF OH DL = 17 (3) = 51 PLF

(E) ROOF OH SL = 25 (3) = 75 PLF

(E) WALL = 10 (10) = 100 PLF

NEW LOWER ROOF DL = 17 (4.5/2) = 38 PLF

" " " SL = 25 (4.5/2) = 56 PLF

ΣDL = 189 PLF

ΣSL = 131 PLF

P_{DL} = 189 (24/2) = 2268 #

P_{SL} = 131 (24/2) = 1572 #

SEE NEXT SHEET →

Dan Green Engineering,INC
3230 Triangle Dr. SE
Salem, Oregon 97302
503-391-2309
dangreen@wvi.com

Project Title: AOCE addition
Engineer: DSG
Project ID: 240249
Project Descr:

Wood Beam

Project File: 240249.ec6

DESCRIPTION: New beam (removing (E) steel post)

CODE REFERENCES

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

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2018

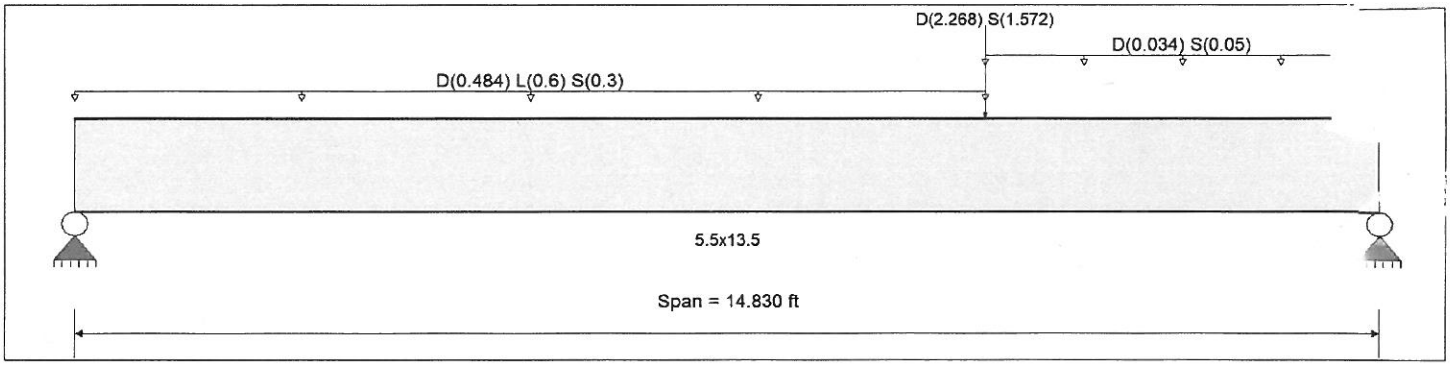
Wood Species : DF/DF
Wood Grade : 24F-V4

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

Fb +	2400 psi
Fb -	1850 psi
Fc - Prll	1650 psi
Fc - Perp	650 psi
Fv	265 psi
Ft	1100 psi

E : Modulus of Elasticity

Ebend- xx	1800ksi
Eminbend - xx	950ks
Ebend- yy	1600ksi
Eminbend - yy	850ksi
Density	31.21pcf



Applied Loads

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

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.4840, L = 0.60, S = 0.30 k/ft, Extent = 0.0 -->> 10.330 ft, Tributary Width = 1.0 ft
Uniform Load : D = 0.0340, S = 0.050 k/ft, Extent = 10.330 -->> 14.830 ft, Tributary Width = 1.0 ft
Point Load : D = 2.268, S = 1.572 k @ 10.330 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.900 : 1	Maximum Shear Stress Ratio	=	0.529 : 1
Section used for this span		5.5x13.5	Section used for this span		5.5x13.5
fb: Actual	=	2,484.87 psi	fv: Actual	=	140.16 psi
F'b	=	2,760.00 psi	F'v	=	265.00 psi
Load Combination		+D+0.750L+0.750S	Load Combination		+D+L
Location of maximum on span	=	7.686 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

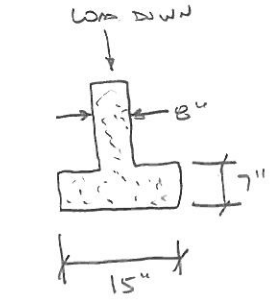
Max Downward Transient Deflection	0.257 in	Ratio =	692 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.672 in	Ratio =	264 >=240	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <240	n/a

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	9.017	6.963
Max Upward from Load Combinations	9.017	6.963
Max Upward from Load Cases	4.089	3.570
D Only	4.089	3.570
+D+L	8.129	5.729
+D+S	6.620	5.935
+D+0.750L	7.119	5.189
+D+0.750L+0.750S	9.017	6.963
+0.60D	2.453	2.142
L Only	4.039	2.159
S Only	2.531	2.365

CHECK (E) FOOTING @ SUPPORT FOR NEW BEAM @ EXTERIOR WALL

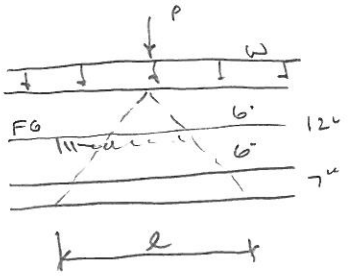


(E) FOOTING SIZE PER CLIENT

LOAD DOWN – LINE LOAD ↓ roof: $\frac{(25+17)(6.5)^2}{2(4.5)}$ = 197 plf

WALL = 10(10) = 100 plf

297 plf



NEW BM POINT LOAD = 6963# (SHT 1.3)

ASSUME 12" TALL STEMWALL (6" ABOVE FG + 6" BELOW)

$\therefore \ell = \frac{(12+7)(2)}{12}$ = 3.17 ft

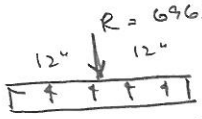
SOIL BEARING = $\frac{6963 + 297(3.17)}{3.17(15/12)}$ = 2495 psf >> 1500 psf

NO good – Need to DIST OUT POINT LOAD

IF WE DIST OUT POINT LOAD OVER 24"

$\therefore \ell = 3.17 + 2 = 5.17'$ SOIL BEARING = $\frac{6963 + 297(5.17)}{5.17(15/12)}$ = 1315 psf < 1500 psf

∴ ADD A 24" LONG HDR TO DIST LOAD



$W = \frac{6963}{2}$ = 3482 plf

NEW ROOF + 297 plf

3779 plf

V_M = 3779# M = 3779(.5) = 1890 ft-#

$\Delta EI = \frac{3779\ (1/12)(12)^4}{6}$ = 8.16 × 10^5 #-in^3

6×8 V_a = 4676# M_a = 3759 ft-# I = 193 Δ = .003"

C_D = 1.0

(6×8" OR, 24" LONG MINIMUM)

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240249 SHEET NO. 1.4

DESIGNER DSG DATE 2/29/24

CLIENT CRAVENHO CONST

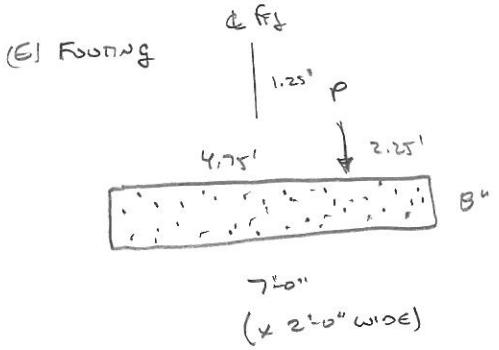
PROJECT ADUS ADDITION

FOOTING AT INTERIOR END OF NEW BM (BATHROOM WALL)

P (NEW BEAM) ⇒ DL = 4089# LL = 4039# SL = 2531#

P (EX BM) ⇒ DL = 404 $\left(\frac{5.67}{2}\right)$ = 1372# LL = 600 $\left(\frac{5.6}{2}\right)$ = 1701# SL = 300 (5.67/2) = 851#

	PL	LL	M	
ΣDL = 4089 + 1372 =	5461	× 1.25 =	6826	1.2
ΣLL = 4039 + 1701 =	5740	× 1.25 =	7175	
ΣSL = 2531 + 851 =	3382	× 1.25 =	4228	
	Σ 14503#			



SEE NEXT SHEET →

IT IS NO GOOD NEED NEW FOOTING

FOR PL = 14503# [USE 6x6" (1 OF) AND PL FOOTING] (@ 10' PL = 10.9(K) (17.8(K))

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240 249 SHEET NO. 1.5
DESIGNER OSC DATE 2/29/24
CLIENT CRANCENO CONST
PROJECT ACCE ADDN

Dan Green Engineering,INC
3230 Triangle Dr. SE
Salem, Oregon 97302
503-391-2309
dangreen@wvi.com

Project Title: AOCE addition
Engineer: DSG
Project ID: 240249
Project Descr:

General Footing

Project File: 240249.ec6

DESCRIPTION: Existing 7' x 2' footing @ new beam

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2018

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	150.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.850

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
Add Ftg Wt for Soil Pressure	:	No
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	1.50 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.350

Increases based on footing Depth

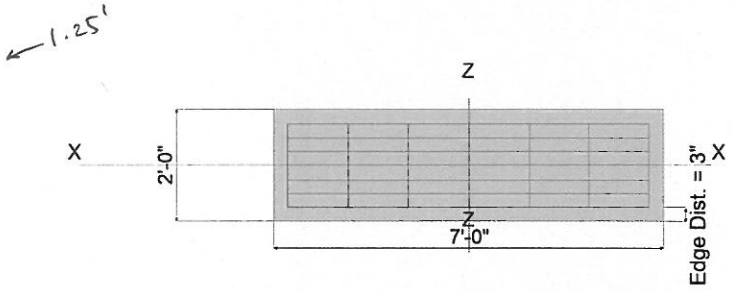
Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

Width parallel to X-X Axis	=	7.0 ft
Length parallel to Z-Z Axis	=	2.0 ft
Footing Thickness	=	8.0 in
Load location offset from footing center...		
ex : Prll to X-X Axis	=	15 in
	=	in
Pedestal dimensions...		
px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete...		
at Bottom of footing	=	3.0 in



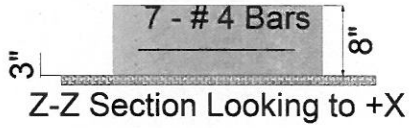
Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		7.0
Reinforcing Bar Size	=	#	4
Bars parallel to Z-Z Axis			
Number of Bars	=		7.0
Reinforcing Bar Size	=	#	4

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation

	Bars along Z-Z Axis
# Bars required within zone	44.4 %
# Bars required on each side of zone	55.6 %



Z-Z Section Looking to +X

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	5.461		5.740	3.382				k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=	0.0		0.0	0.0				k-ft
V-x	=								k
V-z	=								k

1.6

Dan Green Engineering,INC
3230 Triangle Dr. SE
Salem, Oregon 97302
503-391-2309
dangreen@wvi.com

Project Title: AOCE addition
Engineer: DSG
Project ID: 240249
Project Descr:

General Footing

Project File: 240249.ec6

DESCRIPTION: Existing 7' x 2' footing @ new beam

DESIGN SUMMARY

Design N.G.

	Min. Ratio	Item	Applied		Capacity	Governing Load Combination
FAIL	1.209	Soil Bearing	1.813 ksf	>	1.50 ksf	+D+0.750L+0.750S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft		0.0 k-ft	No Overturning
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	Sliding - Z-Z	0.0 k		0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k		0.0 k	No Uplift
PASS	0.4275	Z Flexure (+X)	5.809 k-ft/ft		13.588 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.4275	Z Flexure (-X)	5.809 k-ft/ft		13.588 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.1440	X Flexure (+Z)	0.6224 k-ft/ft		4.324 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.1440	X Flexure (-Z)	0.6224 k-ft/ft		4.324 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.7277	1-way Shear (+X)	67.761 psi		93.113 psi	+1.20D+1.60L+0.50S
PASS	0.5726	1-way Shear (-X)	53.320 psi		93.113 psi	+1.20D+1.60L+0.50S
PASS	0.1292	1-way Shear (+Z)	12.034 psi		93.113 psi	+1.20D+1.60L+0.50S
PASS	0.1292	1-way Shear (-Z)	12.034 psi		93.113 psi	+1.20D+1.60L+0.50S
PASS	0.9246	2-way Punching	172.191 psi		186.226 psi	+1.20D+1.60L+0.50S

@ (E) Footing -
Soil bearing is no good

Wood Column Design Analysis

Can be increased for snow, wind,or seismic loading.

Member Size	Height	Grade	F_c	C_f	C_m	C_D	C_t	Adjusted	Allowable Axial Load
2 x 4	8'-0"	DF-L #2	1300	1.15	1.00	1.00	1.00	1495	2983
2 x 4	9'-0"	DF-L #2	1300	1.15	1.00	1.00	1.00	1495	2428
2 x 6	8'-0"	DF-L #2	1300	1.10	1.00	1.00	1.00	1430	8534
2 x 6	10'-0"	DF-L #2	1300	1.10	1.00	1.00	1.00	1430	6623
2 x 6	12'-0"	DF-L #2	1300	1.10	1.00	1.00	1.00	1430	5029
4 x 4	8'-0"	DF-L #2	1300	1.15	1.00	1.00	1.00	1495	6961
4 x 4	10'-0"	DF-L #2	1300	1.15	1.00	1.00	1.00	1495	4680
4 x 4	12'-0"	DF-L #2	1300	1.15	1.00	1.00	1.00	1495	3326
4 x 6	8'-0"	DF-L #2	1300	1.10	1.00	1.00	1.00	1430	10864
4 x 6	10'-0"	DF-L #2	1300	1.10	1.00	1.00	1.00	1430	7328
4 x 6	12'-0"	DF-L #2	1300	1.10	1.00	1.00	1.00	1430	5214
4 x 8	8'-0"	DF-L #2	1300	1.05	1.00	1.00	1.00	1365	14211
4 x 8	10'-0"	DF-L #2	1300	1.05	1.00	1.00	1.00	1365	9621
4 x 8	12'-0"	DF-L #2	1300	1.05	1.00	1.00	1.00	1365	6856
6 x 6	8'-0"	DF-L #2	700	1.00	1.00	1.00	1.00	700	17389
6 x 6	10'-0"	DF-L #2	700	1.00	1.00	1.00	1.00	700	14692
6 x 6	12'-0"	DF-L #2	700	1.00	1.00	1.00	1.00	700	11831
6 x 6	8'-0"	DF-L #1	1000	1.00	1.00	1.00	1.00	1000	24841
6 x 6	10'-0"	DF-L #1	1000	1.00	1.00	1.00	1.00	1000	20988
6 x 6	12'-0"	DF-L #1	1000	1.00	1.00	1.00	1.00	1000	16901
6 x 8	8'-0"	DF-L #1	1000	1.00	1.00	1.00	1.00	1000	33874
6 x 8	10'-0"	DF-L #1	1000	1.00	1.00	1.00	1.00	1000	28621
6 x 8	12'-0"	DF-L #1	1000	1.00	1.00	1.00	1.00	1000	23047

Maximun bearing loads (#2 DFL sill plate)

Column size	Allowable load (kips)
2x4	3.28
2x6	5.16
4x4	7.66
4x6	12.03
4x8	16.41
6x6	18.91
6x8	25.78

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON
(503) 391-2309

FILE NO. 240249 SHEET NO. 18
DESIGNER DSG DATE 3/1/24
CLIENT CRAVENHO CONST
PROJECT ADCE MAU

PAD FOOTING SCHEDULE						
MARK	"W" WIDTH FEET-INCH	"T" HEIGHT INCHES	"N" NUMBER BARS	BAR SIZE	FOOTING WEIGHT kips	ALLOWABLE LOAD kips
P1	2'-0"	10"	3	#4	0.5	5.5
P2	2'-6"	10"	3	#4	0.8	8.6
P3	3'-0"	10"	3	#4	1.1	12.0
P4	3'-6"	10"	4	#4	1.5	17.8
P5	4'-0"	12"	4	#5	2.4	22.0
P6	4'-6"	12"	4	#5	3.0	27.6
P7	5'-0"	12"	6	#5	3.8	33.6
P8	5'-6"	12"	7	#5	4.6	45.4

Assume 1500 psf soil bearing

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON
(503) 391-2309

FILE NO. 240249 SHEET NO. 1.9
DESIGNER AG DATE 3/1/24
CLIENT Cannery Court
PROJECT ADCE NADW

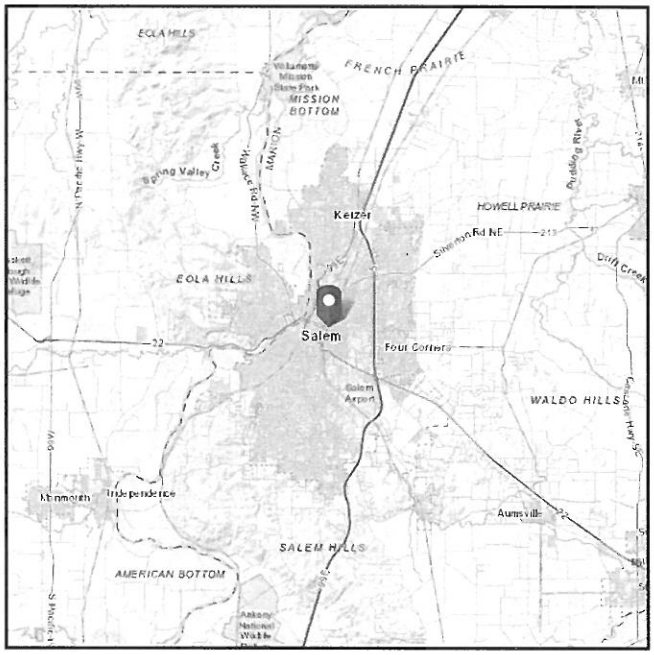
ASCE Hazards Report

Address:
1243 Marion St NE
Salem, Oregon
97301

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 44.941378
Longitude: -123.024198
Elevation: 173.15117947128377 ft (NAVD 88)


Belmont St NE
E St NE
Summer St NE
Capitol St NE
Market St NE
East Av NE
Liberty St NE
High St NE
Church St NE
Cottage St NE
Winter St NE
Union St NE
Parrish Middle School
Northeast Neighbors
North Salem High School
D St NE
C St NE
B St NE
Marion St NE
Marion St NE
Center St NE
Central Area
Court St NE
State St
Capitol Mall
Willson Park
State Capitol
Jason Lee Manor
Center St NE
Chemeketa St NE
Ford Hall
McKay Park
Mill St SE
Willamette University
Sparks Center
Ferry St SE
State St
Bellevue St SE
Macy's



https://ascehazardtool.org/

Thu Feb 29 2024

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Seismic

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	0.822	S_{D1} :	N/A
S_1 :	0.412	T_L :	16
F_a :	1.2	PGA :	0.382
F_v :	N/A	PGA_M :	0.465
S_{MS} :	0.986	F_{PGA} :	1.218
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.657	C_v :	1.211

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Thu Feb 29 2024

Date Source: USGS Seismic Design Maps

MecaWind v2460

Developed by Meca Enterprises Inc., www.mecaenterprises.com, Copyright © 202

Calculations Prepared by:
Dan Green Engineering, Inc.
3230 Triangle Dr SE
Salem, Oregon, 97302
Date: Mar 01, 2024
Designer: DSG

Calculations Prepared For:
Client: Cravenho Construction
Project #: 240249
Location: Salem, OR
Description: AOCE Addition

File Location: C:\Users\dangr\OneDrive\Documents\1 Jobs\2024\240249 - AOCE addition\wind.wnd

General:

Wind Load Standard	= ASCE 7-16	Basic Wind Speed	= 120.0 mph
Exposure Classification	= B	Risk Category	= II
Structure Type	= Building	Design Basis for Wind Pressures	= ASD
MWFRS Analysis Method	= Ch 28 Pt 1	C&C Analysis Method	= None
Dynamic Type of Structure	= Flexible	Natural Frequency of Structure,	= 1.000 Hz
Structural Damping	= 0.0100	Show Advanced Options	= 0
Reset Advanced Options to Default Values	= Defaults	Simple Diaphragm Building	= True
Show Base Reactions in Output	= None	Altitude above Sea Level	= 0.000 ft
Base Elevation Of Structure	= 0.000 ft	MWFRS Pressure Elevations	= Mean Ht
Topographic Effects	= None	Override Directionality Factor K_d	= False
Override the Gust Factor G	= False	Override Minimum Pressure	= False
Number of Stories for Building	= 2	Building has a flexible diaphragm	= True
Building is Light Frame Construction	= True		

Building:

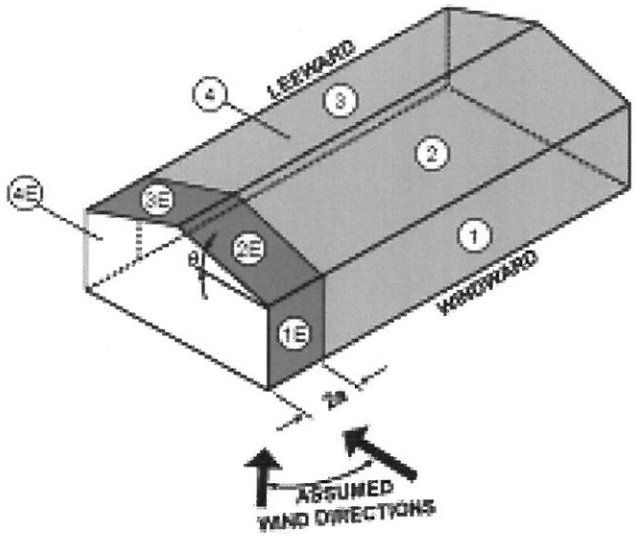
Roof = Roof Type	= Hipped	Encl = Enclosure Classification	= Enclosed
Help = Help on Building Roof Type	= Help	Pitch = Pitch of Roof	= 6.0 :12
θ = Slope of Roof	= 26.57 Deg	R_{Ht} = Ridge Height	= 27.000 ft
E_{Ht} = Eave Height	= 21.000 ft	W = Building Width	= 24.000 ft
L = Building Length	= 57.000 ft	HipLen = Ridge Hipped Length	= 33.000 ft
EndSlope = Hipped End Slope of Roof	= 26.57 Deg	OH = Type of Overhang	= None
Par = Parapet	= None	HT_{over} = Override Mean Roof Height	= False
Ht_{man} = Mean Roof Height	= 24.000 ft	RA_{over} = Override Roof Area	= False
GC_{pi_o} = Override GC_{pi} value	= False		

Exposure Constants [Tbl 26.11-1]:

α = 3-s Gust-speed exponent	= 7.000	Z_g = Nominal Ht of Boundary Layer	= 1200.000 ft
â = Reciprocol of α	= 0.143	b = 3 sec gust speed factor	= 0.840
α_m = Mean hourly Wind-Speed Exponent	= 0.250	b_m = Mean hourly Windspeed Exponent	= 0.450
c = Turbulence Intensity Factor	= 0.300	ε = Integral Length Scale Exponent	= 0.3333

Main Wind Force Resisting System (MWFRS) Calculations per Ch 28 Pt 1

h	= Mean structure height	= 24.000 ft
K_h	= Since Exp B and z < 30 ft [9.1 m] use 0.7 [Tbl 26.10-1]	= 0.700
K_{zt}	= Topographic: $(1+K_1 \cdot K_2 \cdot K_3)^{\wedge 2}$ [Eq 26.8-1]	= 1.000
K_d	= Wind Directionality Factor per Tbl 26.6-1	= 0.85
$+GC_{pi}$	= Enclosed Positive Internal Pressure Tbl 26.13-1	= +0.18
$-GC_{pi}$	= Enclosed Negative Internal Pressure Tbl 26.13-1	= -0.18
LF	= Load Factor based upon ASD Design	= 0.60
K_e	= Ground Elev Factor [Tbl 26.9-1]	= 1.000
q_h	= $0.00256 \cdot K_h \cdot K_{zt} \cdot K_d \cdot K_e \cdot V^2 * LF$ [Eq 26.10-1]	= 13.16 psf
Slope	= Slope of Roof	= 26.57 Deg
q_h	= $0.00256 \cdot K_h \cdot K_{zt} \cdot K_d \cdot K_e \cdot V^2 * LF$ [Eq 26.10-1]	= 13.16 psf
LHD	= Least Horizontal Dimension: Min(B, L)	= 24.000 ft
a_1	= Min(0.1•LHD, 0.4•h)	= 2.400 ft
a	= Max(a_1, 0.04•LHD, 3 ft [0.9 m])	= 3.000 ft
2a	= 2 x a dimension used for E zones	= 6.000 ft



Load Case 1

Wind Pressures per Ch 28 Pt 1 [Transverse]
All wind pressures include a Load Factor (LF) of 0.6

Building Surface	GCpf	GCpi ±	p +GCPi psf	p -GCPi psf
1	0.550	0.180	4.87	9.60
2	-0.099	0.180	-3.67	1.06
3	-0.447	0.180	-8.25	-3.52
4	-0.391	0.180	-7.51	-2.77
1E	0.728	0.180	7.21	11.95
2E	-0.190	0.180	-4.87	-0.14
3E	-0.585	0.180	-10.07	-5.33
4E	-0.535	0.180	-9.41	-4.67

Roof = 4.6 psf
Wall = 12.4 psf

Roof = 5.2 psf
Wall = 16.6 psf

Notes:

p = [Walls and Roof] $q_h \cdot (GC_{pf} - +GC_{pi})$ *[Eq 28.3-2]*

[Parapet] $q_p \cdot (GC_{pn})$ *[Eq 28.3-1]*

GCpf = External Pressure coefficient from Ch 28 Pt 1

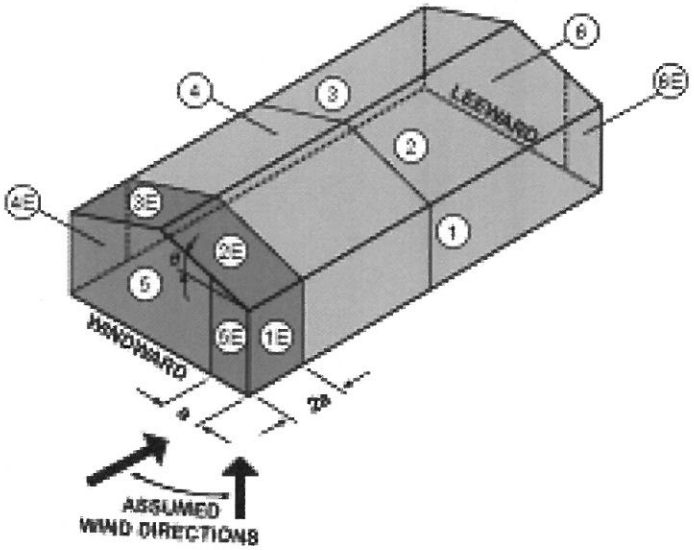
Torsional load cases with 'T' need not be considered if Either of following are met:

* *One Story buildings with h <= 30 ft [9.1 m]*
* *2 stories or less framed with light frame construction and Flexible Diaphragm*

Since GCPf for Zone 2 and 2E are both negative, follow note in Ch 28 Pt 1:

L	= Length Parallel to Wind	= 24.000 ft
L1a	= 0.5 * L	= 12.000 ft
L1b	= 2.5 * EHt	= 52.500 ft
L2	= Lessor of L1a or L1b	= 12.000 ft

Zone 2/2E to extend a distance 'L2' from Roof Edge and the remainder to Ridge is Zone 3/3E



Load Case 2

Wind Pressures per Ch 28 Pt 1 [Longitudinal]
All wind pressures include a Load Factor (LF) of 0.6

Building Surface	GCpf	GCpi ±	p +GCPi psf	p -GCPi psf	
1	-0.450	0.180	-8.29	-3.55	
2	-0.690	0.180	-11.45	-6.71	
3	-0.370	0.180	-7.24	-2.50	
4	-0.450	0.180	-8.29	-3.55	
5	0.400	0.180	2.90	7.63	9.1 psf
6	-0.290	0.180	-6.19	-1.45	
1E	-0.480	0.180	-8.69	-3.95	
2E	-1.070	0.180	-16.45	-11.71	
3E	-0.530	0.180	-9.34	-4.61	
4E	-0.480	0.180	-8.69	-3.95	
5E	0.610	0.180	5.66	10.40	13.7 psf
6E	-0.430	0.180	-8.03	-3.29	

Notes:

p = [Walls and Roof] $q_h \cdot (GC_{pf} - +GC_{pi})$ *[Eq 28.3-2]*

[Parapet] $q_p \cdot (GC_{pn})$ *[Eq 28.3-1]*

GCpf = External Pressure coefficient from Ch 28 Pt 1

Torsional load cases with 'T' need not be considered if Either of following are met:

* *One Story buildings with h <= 30 ft [9.1 m]*
* *2 stories or less framed with light frame construction and Flexible Diaphragm*

Since GCPf for Zone 2 and 2E are both negative, then the Note in Ch 28 Pt 1 is applicable; however, it is unclear how it would be applied in the longitudinal case. Meca has reviewed the code and in ASCE 7 Zones 2/2E were configured differently, and the note was logical in the layout of these zones. Meca believes the note is no longer applicable to the longitudinal case in ASCE 7, and so it has not been applied.

Seismic Loading

Soil Site Class D

Seismic Use Group II

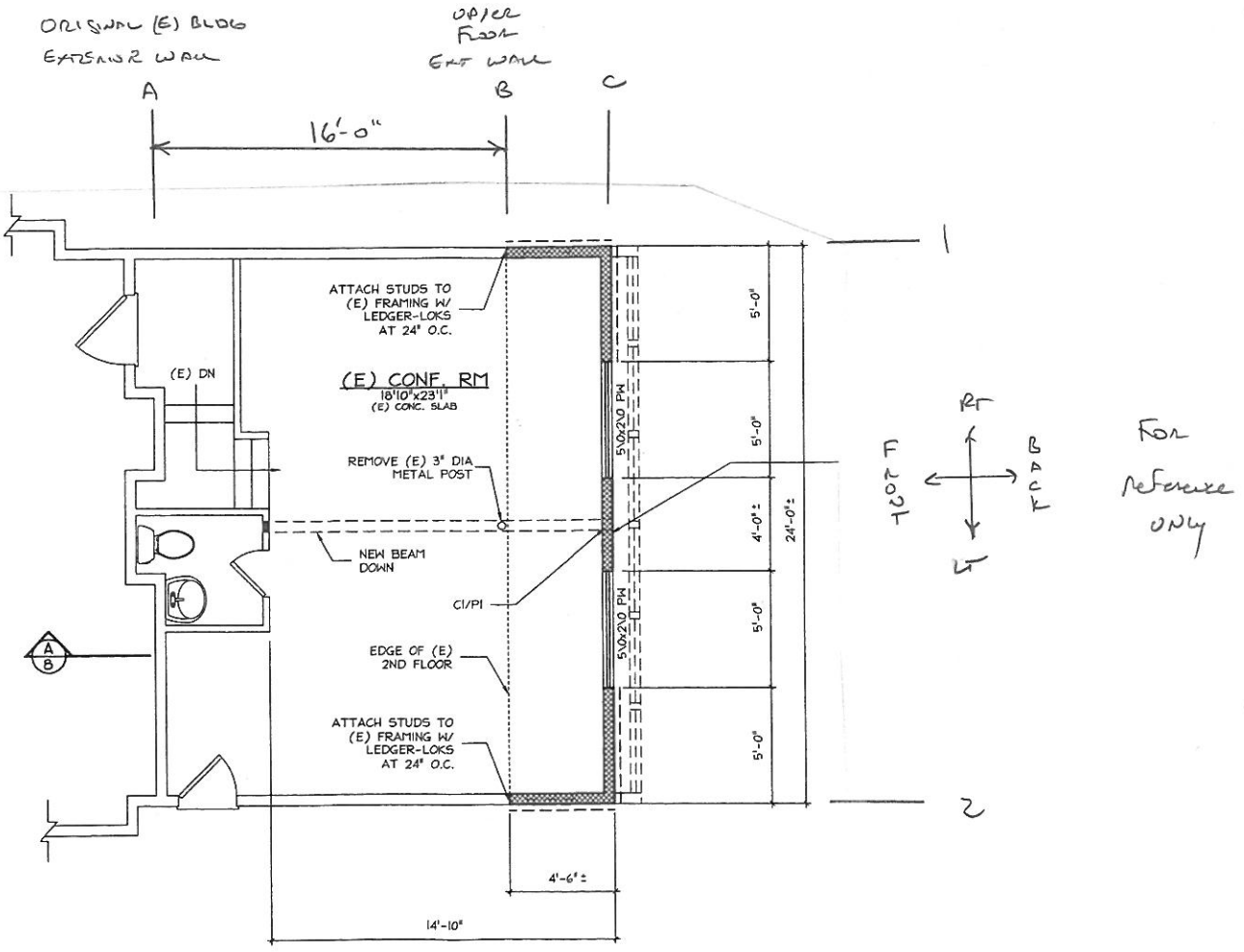
S_s= 0.822	F_a= 1.200	S_{MS}= 0.986	S_{DS}= 0.658
S_1= 0.412	F_v= N/A	S_{M1}= N/A	S_{D1}= N/A

Category D

Response Modification Factor, R 6.5

Base Shear

$$V = (1.1S_{DS}xW)/(Rx1.4)$$
$$= 0.079\ W$$



DAN GREEN
ENGINEERING, INC.
SALEM, OREGON
(503) 391-2309

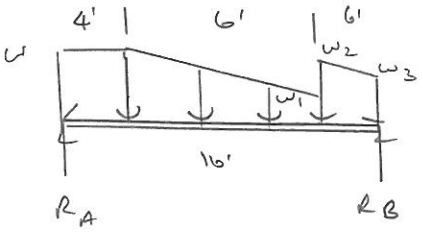
FILE NO. 240249 SHEET NO. 2.6
DESIGNER DG DATE 3/1/24
CLIENT CRAWFORD CONST
PROJECT ADCE ADDN

LOADING ON STRUCTURE – FRONT/BACK DIRECTION

NOT ADDING ANY LOAD TO (E) BLDG. NO ADDITIONAL VERTICAL PROJECTION AND DEADLOAD ≈ SAME. ∴ MAKE NEW SIDE WALLS A TYPE Ⓐ SW TO STIFFEN UP

RT/LT DIRECTION – ROOF

WIND



$w = 4.6(6.5) + 12.4(5) = 92$ plf

$w_1 = 4.6(3.5) + 12.4(5) = 78$ plf

$w_2 = 5.2(3.5) + 16.6(5) = 101$ plf

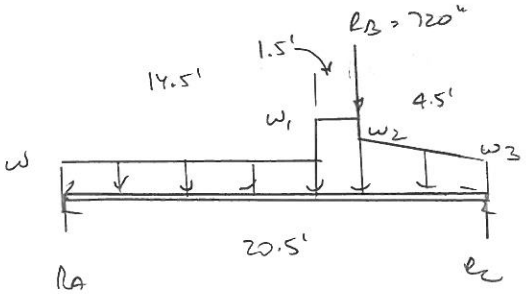
$w_3 = 5.2(.5) + 16.6(5) = 86$ plf

$R_B = [368(2) + 468(7) + 42(6) + 516(13) + 45(12)]/16 = 720^{\#}$

SEISMIC

$w = .079[17(30) + 10(5)(4)] = 56$ plf $\quad R_B = 56(16/2) = 448^{\#}$

UPPER FLOOR – WIND



$w = 12.4(11) = 136$ plf $\quad w_1 = 16.6(11) = 183$ plf

$w_2 = 13.7(7.5) = 103$ plf $\quad w_3 = 13.7(6) = 82$ plf

$R_C = [720(16) + 1972(7.25) + 275(15.25) + 369(18.25) + 47.25(17.5)]/20.5$
$= 1833^{\#}$

SEISMIC $\quad P_{sei} = 448^{\#}$

$w_{A-B} = .079[15(24) + 10(5)(4+2)] = 52$ plf $\quad w_{B-C} = .079[17(30) + 10(5)(2)] = 48$ plf

Sei < Wind ∴ Wind controls

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240249 SHEET NO. 2.7
DESIGNER DG DATE 3/1/24
CLIENT Crancino Cent
PROJECT Aces rdw

GRID C SW'S & HD'S

$R_L = 1833^{\#}$ PANELS → (2) 5.0' 4.0' TOTAL = 14.0'

$V_{SW} = 1833/14 = 131$ plf ← (15/32 OSB W/ 8d @ 6" O.C.)

4.0

$M_{OT} = 131(4)(10) = 5240^{'\cdot\#}$ $M_R = .6[(12(4) + 100)(4/2) + 100(4)] = 912^{'\cdot\#}$

NET OT = $4328^{'\cdot\#}$ R = $1082^{\#}$ ∴ (LTTP2) Tc = $2135^{\#}$

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240249 SHEET NO. 2.8
DESIGNER DSG DATE 3/1/24
CLIENT CRAVENHO CONST
PROJECT ADCE ADDN

TABLE T.1 — SHEARWALL SCHEDULE [1,2,3,7,9]

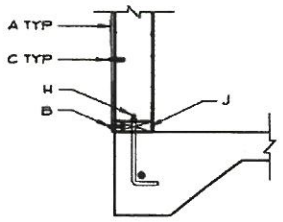
ASSUMING ALL FRAMING AT SHEAR WALL ARE DOUGLAS FIR

WALL TYPE	A [4] SHEATHING	B PANEL EDGE NAILING	C FIELD NAILING	REMARKS	D ROOF BLOCK TO DOUBLE TOP PLATES	E [10] DOUBLE TOP PLATES	F BOTTOM PLATE TO 1-1/2" RIM JOIST: 3/4" FLOOR [12] SHEATHING	F BOTTOM PLATE TO 1-1/2" RIM JOIST: 1-1/8" FLOOR [13] SHEATHING	G RIM JOIST TO DOUBLE TOP PLATES	H [6,8,11] SILL PLATE CONNECTION (DIAMETER x 10" LONG ANCHOR BOLTS): 1/2" DIA.	H [6,8,11] SILL PLATE CONNECTION (DIAMETER x 10" LONG ANCHOR BOLTS): 5/8" DIA.	J [11] SILL PLATE THICKNESS	SHEAR
→ (A)		@13ix2-1/2 NAILS @ 6" o.c.			A35 CLIPS @ 20" o.c.	@148x3 NAILS @ 6" o.c. STAGGERED	@162x3-1/2 NAILS @ 6" o.c.	@162x3-1/2 NAILS @ 4" o.c.	A35 CLIPS @ 20" o.c.	1/2" DIA. @ 3'-0" o.c.	5/8" DIA. @ 4'-0" o.c.	2x	260 PLF
(B)		@13ix2-1/2 NAILS @ 4" o.c.			A35 CLIPS @ 14" o.c.	@148x3 NAILS @ 4" o.c. STAGGERED	@162x3-1/2 NAILS @ 4-1/2" o.c.	@162x3-1/2 NAILS @ 3" o.c.	A35 CLIPS @ 14" o.c.	1/2" DIA. @ 2'-0" o.c.	5/8" DIA. @ 3'-0" o.c.	2x	350 PLF
(C)		@13ix2-1/2 NAILS @ 4" o.c.	@13ix2-1/2 NAILS @ 12" o.c.		A35 CLIPS @ 14" o.c.	@148x3 NAILS @ 4" o.c. STAGGERED	@162x3-1/2 NAILS @ 4-1/2" o.c.	(2) ROWS @162x3-1/2 NAILS @ 5" o.c.	A35 CLIPS @ 14" o.c.	1/2" DIA. @ 1'-0" o.c.	5/8" DIA. @ 1'-4" o.c.	2x	380 PLF
(D)		@13ix2-1/2 NAILS @ 3" o.c.			A35 CLIPS @ 11" o.c.	@148x3 NAILS @ 3" o.c. STAGGERED	@162x3-1/2 NAILS @ 3-1/2" o.c. STAGGERED	(2) ROWS @162x3-1/2 NAILS @ 4" o.c.	A35 CLIPS @ 11" o.c.	1/2" DIA. @ 0'-8" o.c.	5/8" DIA. @ 1'-0" o.c.	2x	490 PLF
(E)	15/32" CDX PLYWOOD	@13ix2-1/2 NAILS @ 6" o.c.		BOTH SIDE OF WALL	A35 CLIPS @ 10" o.c.	@148x3 NAILS @ 3" o.c. STAGGERED	@162x3-1/2 NAILS @ 3" o.c. STAGGERED	(2) ROWS @162x3-1/2 NAILS @ 4" o.c.	A35 CLIPS @ 10" o.c.	1/2" DIA. @ 0'-8" o.c.	5/8" DIA. @ 1'-0" o.c.	2x	570 PLF
(F)		@13ix2-1/2 NAILS @ 4" o.c.	@13ix2-1/2 NAILS @ 12" o.c.	BOTH SIDE OF WALL	A35 CLIPS @ 7" o.c.	@148x3 NAILS @ 2" o.c. STAGGERED	@162x3-1/2 NAILS @ 6" o.c. & A35 CLIPS @ 7" o.c.	(2) ROWS @162x3-1/2 NAILS @ 3-1/2" o.c.	A35 CLIPS @ 7" o.c.	1/2" DIA. @ 0'-6" o.c.	5/8" DIA. @ 0'-8" o.c.	2x	599 PLF
(G)		@13ix2-1/2 NAILS @ 4" o.c.		BOTH SIDE OF WALL	A35 CLIPS @ 7" o.c.	@148x3 NAILS @ 2" o.c. STAGGERED	@162x3-1/2 NAILS @ 6" o.c. & A35 CLIPS @ 7" o.c.	(2) ROWS @162x3-1/2 NAILS @ 2-3/4" o.c.	A35 CLIPS @ 7" o.c.	1/2" DIA. @ 1'-0" o.c.	5/8" DIA. @ 1'-4" o.c.	3x [5]	760 PLF
(H)		@13ix2-1/2 NAILS @ 3" o.c.		BOTH SIDE OF WALL	A35 CLIPS @ 5-1/2" o.c.	@148x3 NAILS @ 2" o.c. STAGGERED	@162x3-1/2 NAILS @ 6" o.c. & A35 CLIPS @ 5-1/2" o.c.	SIMPSON 1/4x6" SDS SCREWS @ 5-1/2" o.c.	A35 CLIPS @ 5-1/2" o.c.	1/2" DIA. @ 0'-8" o.c.	5/8" DIA. @ 1'-0" o.c.	3x [5]	980 PLF
(J)		@13ix2-1/2 NAILS @ 2" o.c.		BOTH SIDE OF WALL	A35 CLIPS @ 4-1/2" o.c.	@148x3 NAILS @ 2" o.c. STAGGERED	SIMPSON 1/4x6" SDS SCREWS @ 4" o.c.	SIMPSON 1/4x6" SDS SCREWS @ 4" o.c.	A35 CLIPS @ 4-1/2" o.c.	1/2" DIA. @ 0'-6" o.c.	5/8" DIA. @ 0'-8" o.c.	3x [5]	1280 PLF

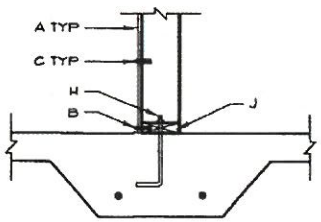
FOOTNOTES:

1. NOT ALL WALL TYPES SHOWN MAY BE USED ON THIS PROJECT.
2. BLOCK ALL PANEL EDGES UNLESS NOTED OTHERWISE.
3. ONLY AT SHEAR WALL LOCATIONS.
4. 3/8" OR 7/16" O.S.B. (PS2-92 GRADE) MAY BE USED IF APPLIED DIRECTLY TO FRAMING AND STUDS ARE SPACED A MAXIMUM OF 16" o.c. or PANELS ARE APPLIED WITH LONG DIMENSION ACROSS STUDS.
5. 2x SILL PLATES MAYBE SUBSTITUTED FOR 3x PLATES IN SEISMIC CATEGORIES "A", "B" or "C".
6. USE EITHER 1/2" OR 5/8" DIAMETER ANCHOR BOLTS. (2) ANCHOR BOLTS MIN. PER PLATE.
7. WHERE PANELS ARE APPLIED ON BOTH SIDES OF A WALL AND NAIL SPACING IS LESS THAN 6 INCHES ON CENTER ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR FRAMING SHALL BE 3 INCH NOMINAL OR THICKER AND NAILS ON EACH SIDE SHALL BE STAGGERED.
8. A 1/2" OR 5/8" DIA. SIMPSON STRONG-BOLT 2 ANCHOR OR EQUAL MAY BE SUBSTITUTED. EMBED BOLT 3 1/2" INTO CONCRETE.
9. SHEATHING ON SHEARWALLS SHALL NOT BE INTERUPTED BY ANY WALL BUTTING INTO SHEARWALL.
10. IF PLYWOOD NOT FULL HEIGHT TO DOUBLE TOP PLATE.
11. STEEL PLATE WASHERS, 1/4" THICKx3"x3" REQUIRED BETWEEN SILL PLATE AND ANCHOR BOLT NUT.
12. USE COMMON NAILS. ROWS OF STAGGERED NAILS TO BE 1/2" APART, CENTERED ON RIM JOIST.
13. USE BOX NAILS. ROWS OF STAGGERED NAILS TO BE 1/2" APART, CENTERED ON RIM JOIST.

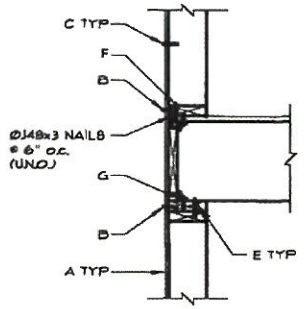
ARROW AT WALL TYPE INDICATES SHEARWALL(S) USED

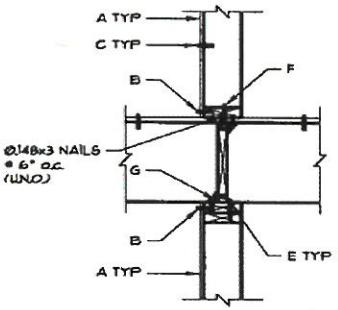


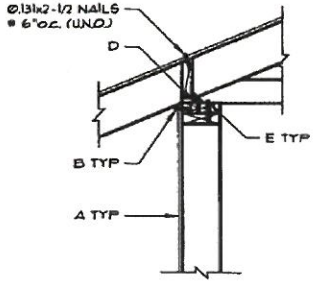
EXTERIOR WALL

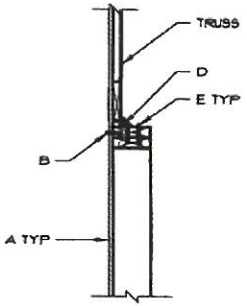


INTERIOR WALL









DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240248 SHEET NO. T.1
DESIGNER OSG DATE 3/1/24
CLIENT CHAVENNO CONST
PROJECT ADDL RACK

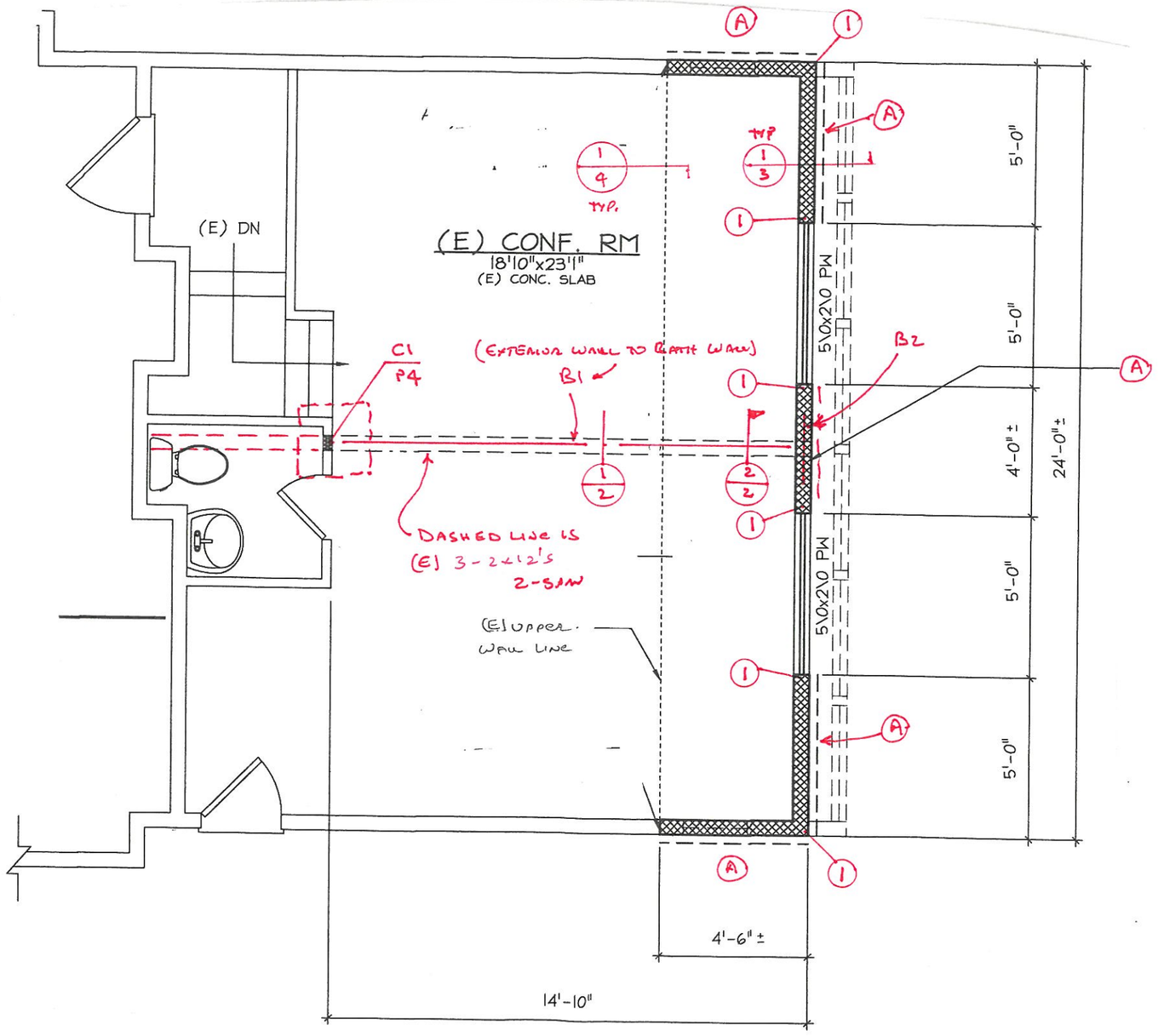
TABLE T.2 HOLDOWN SCHEDULE

MARK	HOLDOWN	ANCHOR BOLT	ANCHOR SIZE	EMBED/ LAP LENGTH	WOOD MEMBER	ANCHORAGE TO WOOD	REMARKS	ALLOW LOAD (lbs)
(1)	LTTP2	A36 ALL THREAD Rod	5/8"ϕ	10"	2x STUD	(12).148x 1½ NAILS	See SK-5, USE SIMPSON SET-3G EPOXY OR EQUAL S.I IS REQUIRED	2135

NOTE: ON ALL HD HOLDOWNS, PLACE ONE (1) EXTRA VERTICAL #4 BAR FROM FOOTING INTO STEMWALL NEXT TO HD.

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240 249 SHEET NO. T.2
DESIGNER DG DATE 3/1/24
CLIENT CRAVENHO CONST
PROJECT ADCE NEW



PARTIAL LOWER FLOOR PLAN
(NTS)

BEAMS

B1 = 5½x13½ (24F-V4) GLB

B2 = 6x8 #2 DFL x 24" LVLS MINIMUM

POST

C1 = 6x6 #1 DFL w/ ECCO CAP

P# - Denotes a concrete pad footing. See sheet 1.9 for size and reinforcement required.

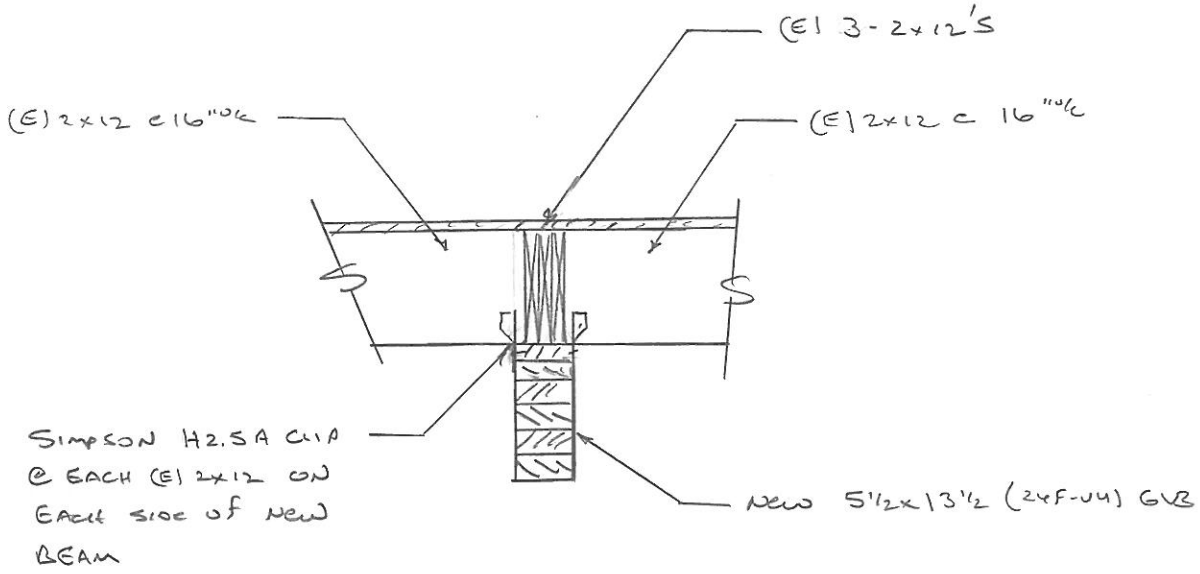
(A) - Denotes a shearwall

(#) - Denotes a holdown

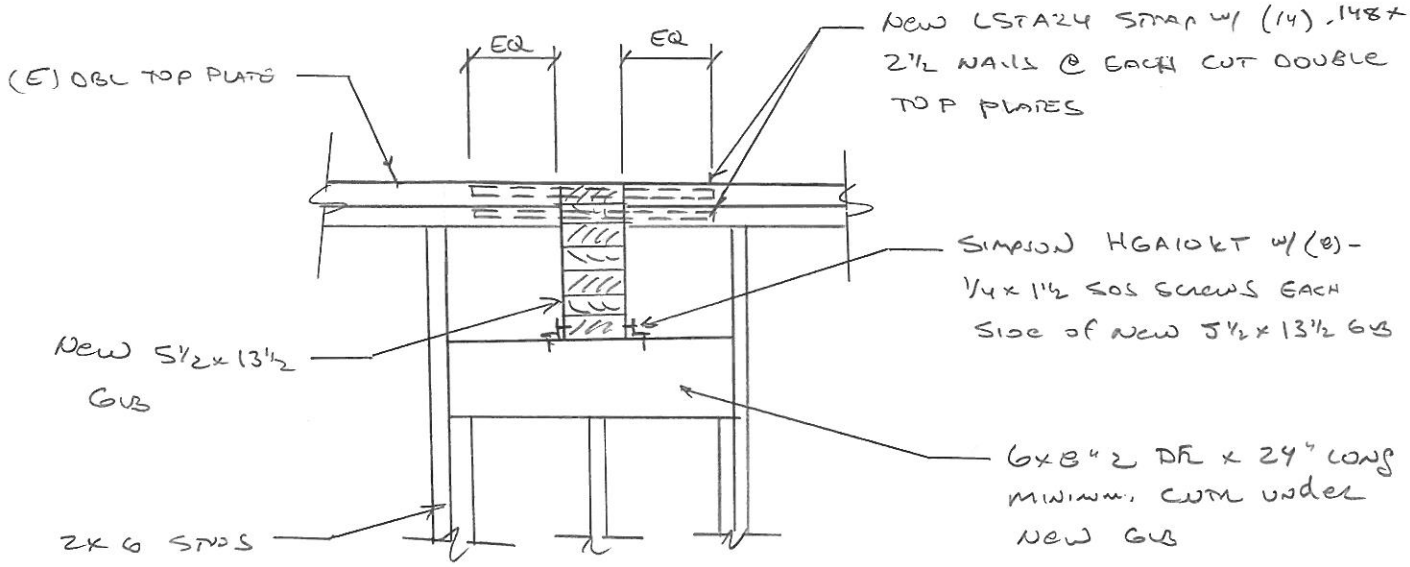
- See tables T.1 and T.2 for holdown/shearwall information.
- Holdowns located at the foundation.
- Shearwalls are from the foundation to the upper floor.

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO.	240249	SHEET NO.	SK-1
DESIGNER	DSG	DATE	3/1/24
CLIENT	CRAVENHO CONST		
PROJECT	ADCE ADD		



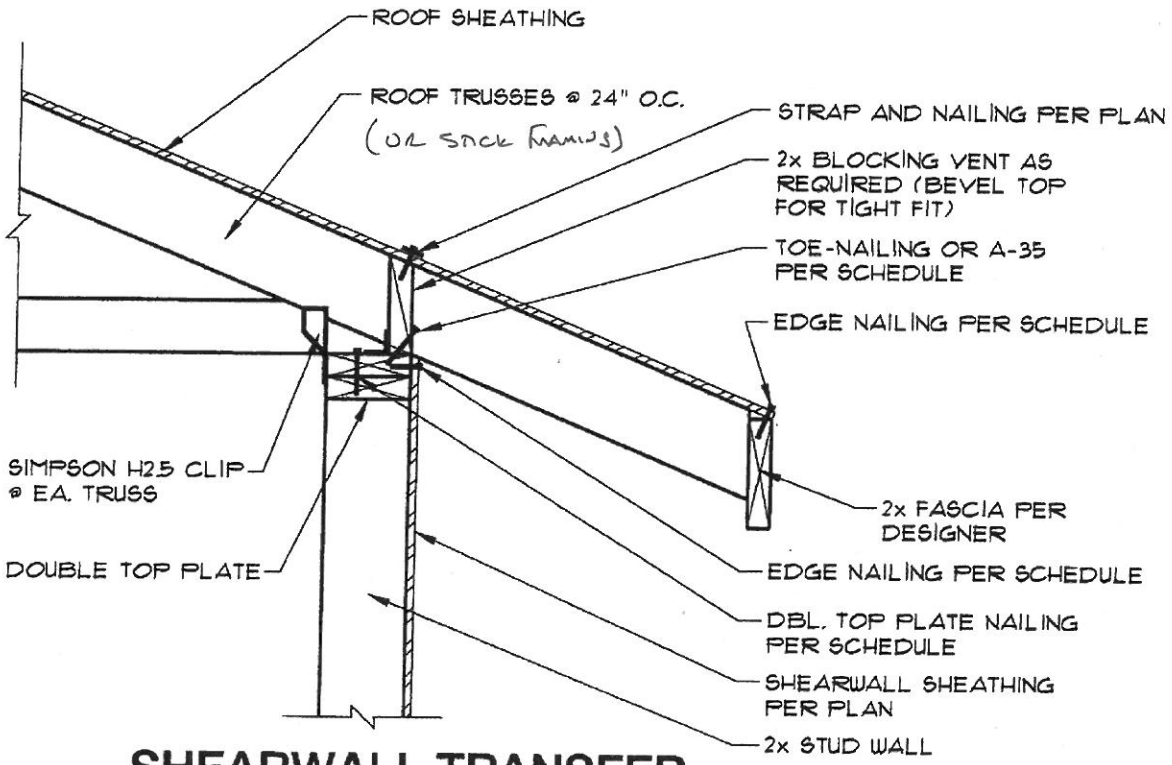
1/2 NEW GLB UNDER (E) BM (NTS)



2/2 NEW GLB IN EXT WALL (NTS)

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240244 SHEET NO. S1.2
DESIGNER DSG DATE 3/01/24
CLIENT CHEMEKETA COMM
PROJECT AOCE ADDN



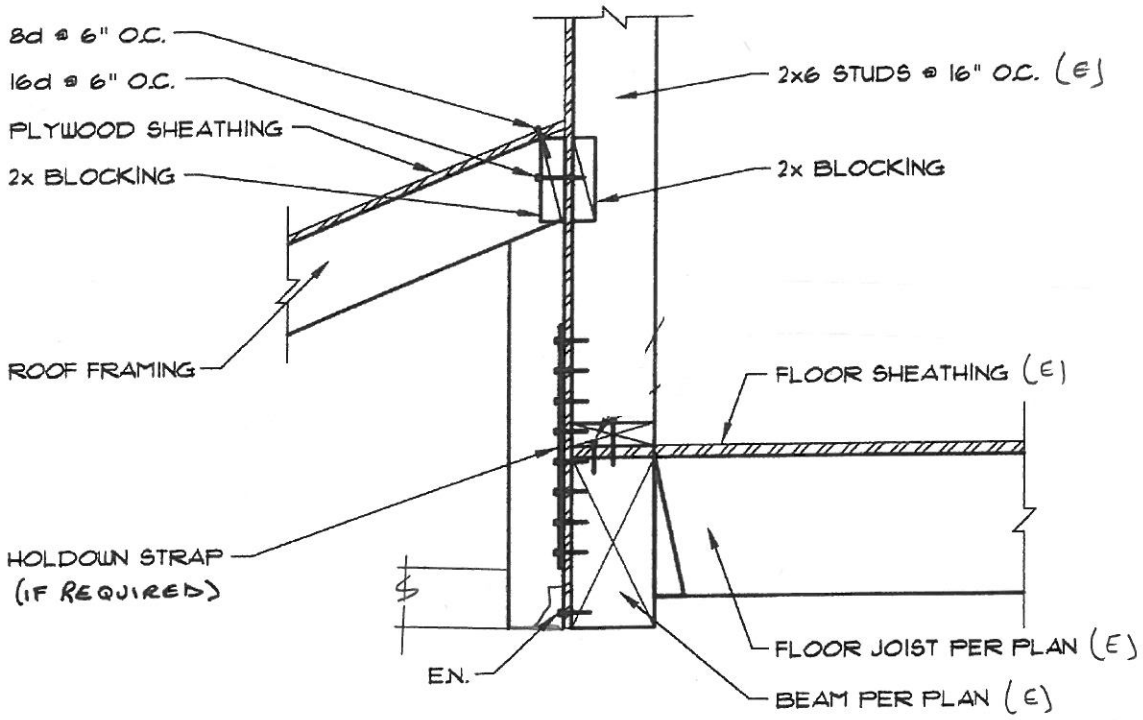
SHEARWALL TRANSFER

1/3 SCALE:

L-0007

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240249 SHEET NO. SK-3
DESIGNER DSG DATE 3/5/24
CLIENT CRAVENHO CONST
PROJECT ADCE ADD'N



SHEAR TRANSFER DETAIL

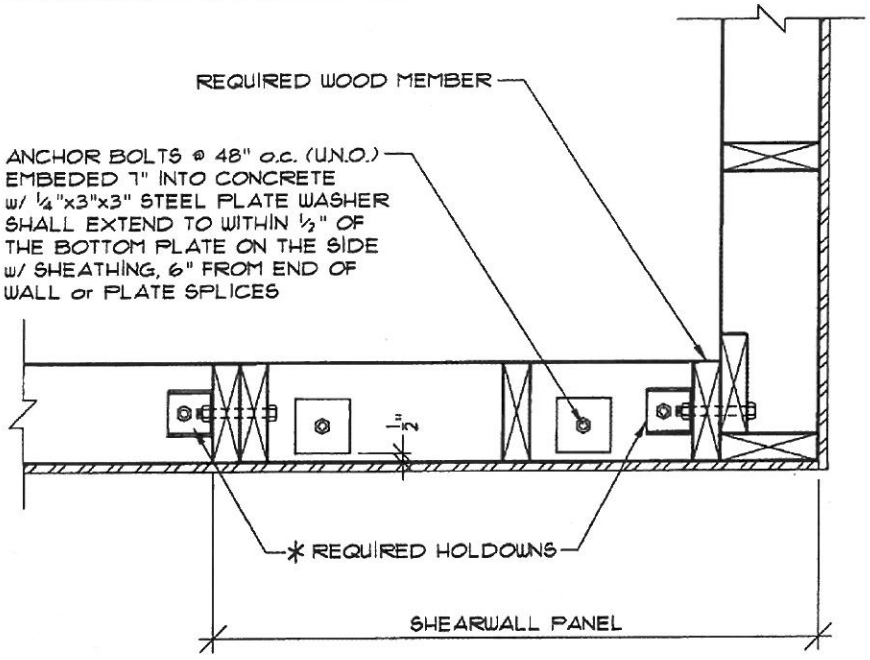
1/4

SCALE: NTS

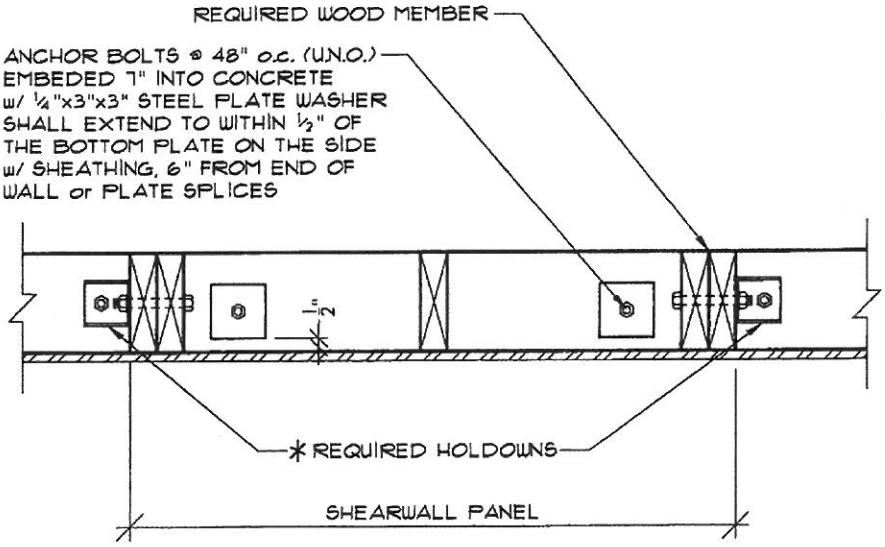
L-0031

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240249 SHEET NO. SK-4
DESIGNER DSG DATE 3/5/24
CLIENT CRAVENHO CONST
PROJECT AOCE ADD'N



AT CORNER LOCATION



AT CONT. FOOTING LOCATION

* NOTE: HOLDOWNS MAY BE PLACED ON INSIDE OF SHEARWALL PANEL WHEN HOLDOWNS CAN NOT BE PLACED ON OUTSIDE.

1/5

HOLDOWN
(TYPICAL PLACEMENT)

SCALE: NTS

L-0020

DAN GREEN
ENGINEERING, INC.
SALEM, OREGON

FILE NO. 240249 SHEET NO. SK-5
DESIGNER DSG DATE 3/5/24
CLIENT CRAVENHOLONST
PROJECT ADCE ADD'N