THE PORT DISTRICT OF SOUTH WHIDBEY ISLAND
SPECIAL MEETING
Held at China City Conference Room, 1804 Scott Rd, Freeland, WA
With virtual access via Zoom meeting service
Tuesday, July 2, 2024 at 2:00 p.m.

AGENDA

Join Zoom Meeting
https://us02web.zoom.us/j/84636691967

Meeting ID: 846 3669 1967
One tap mobile
+12532158782,,84636691967# US (Tacoma)
+12532050468,,84636691967# US

Dial by your location
+1 253 205 0468 US
+1 253 215 8782 US (Tacoma)
Meeting ID: 846 3669 1967
Find your local number: https://us02web.zoom.us/u/klVSqFtKp

SPECIAL MEETING CALL TO ORDER and PLEDGE OF ALLEGIANCE (2:00 p.m.)

Fairgrounds
Food Booths/Concession Stands Foundation Work
Workforce Housing Feasibility Study

Future Presentation to the City of Langley

ADJOURNMENT (Approximately 3:00 p.m.)

D|C|G WATERSHED

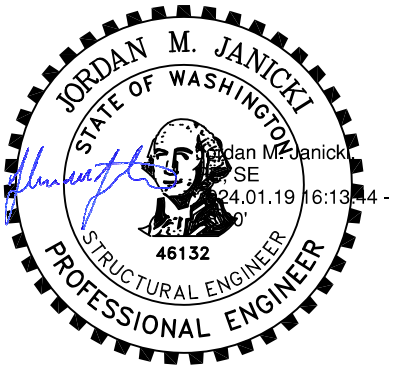
MEMORANDUM

TO: Curt Gordan, POSW Commissioner
Angi Mozer, POSW Executive Direction

FROM: Raymond L Tennal Jr, EIT
Jordan M. Janicki, PE, SE

DATE: January 18, 2024

RE: POSW Fairgrounds Food Pavilion
Structural Repairs Work Description



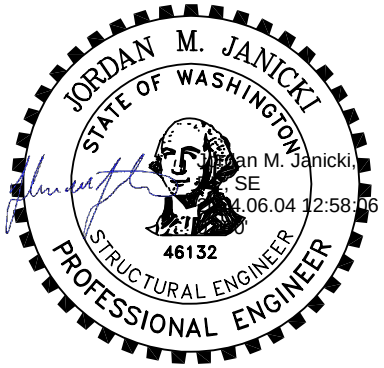
Whidbey Island Fairgrounds Food Pavilion needs structural repairs. Soil erosion on the structure's north side has left the exterior bearing walls unsupported, leading to a sagging roof, walls out of plumb, and cracked foundations.

Provide temporary shoring consisting of new posts and beams will be installed within 2ft along the structure's north side to support the roof and to bear while the structural repair is made. The existing north wall footing and stem wall are to be removed where they have broken, rotated to the north, and settled. A New Controlled Density Fill (CDF) will be placed under the existing slab. A new footing is to be placed, located 18" below the finished grade, and a new 6" concrete stem wall is to be added to the underside of the existing exterior wall. Tie the new stem wall into the existing slab.

Reinforce existing rafters with signs of failures and/or excessive deflections. Some existing rafters have sizable knots along the bottom edge of the rafters and are structurally compromised. Others have developed cracks along the grains and are structurally compromised. These rafters will need a second 2x rafter installed tight to the existing.

FACET
Formerly DCG / Watershed

MEMORANDUM



TO: Curt Gordan, POSW District 3 Commissioner
Angi Mozer, POSW Executive Director

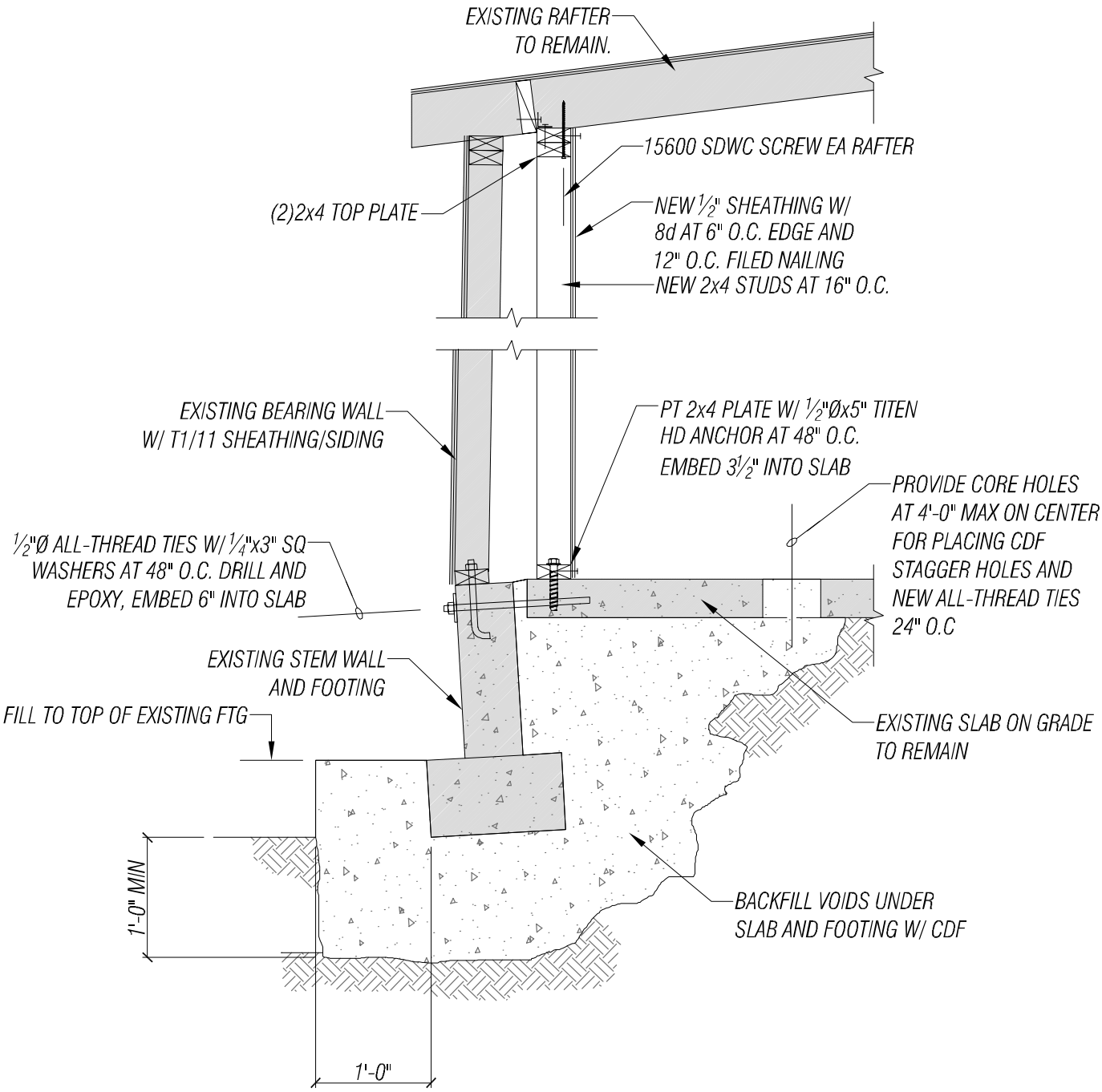
FROM: Raymond L. Tennal Jr., EIT
Jordan M. Janicki, PE, SE

DATE: May 31, 2024

RE: POSW Fairgrounds Food Pavilion
Structural Repair Work Description Addendum

During the meeting on May 30, 2024, a proposed repair option for the foundation on the north side of the building was reviewed. This option, as stated in a DCG/Watershed memo dated December 12, 2023, suggests that the stem wall and footing should be replaced. Alternatively, the stem wall can remain in place, provided a new bearing wall is supported on the existing slab once control density fill (CDF) is placed to fill the voids under the slab and existing footing. Please refer to the SSK attached for more details.

If there are any questions or comments, please contact Facet.



PAVILION WALL/FOUNDATION

DATE: 05/31/2024

PLAN NUMBER: 1/SSK

SCALE 3/4" = 1'-0"

PORT OF SOUTH WHIDBEY

819 CAMANO AVE
LANGLEY, WA.
PROJECT NUMBER: 1811.0039.00

FACET

9706 4th Ave NE
Suite 300
Seattle, WA 98115

P: 206.523.0024
www.facetnw.com

FEDERAL WAY | KIRKLAND | MOUNT VERNON | SEATTLE | SPOKANE | WHIDBEY ISLAND

JORDAN M. JANICKI
STATE OF WASHINGTON
46132
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

Jordan M. Janicki, SE
06.04 13:00:54 -

Invoice

EAGLE BUILDING COMPANY
11248 SR 525
Clinton, WA 98236

Date	Invoice #
6/19/2024	2814

Bill To:

Port of South Whidbey Island
PO Box 872
Freeland WA 98249

P.O. No.	Terms	Project
	Due on receipt	Food Booth Foundati...

Description	Amount
Change Order #001 - see attached	11,370.00T
	Sales Tax (8.8%) $1,000.56
	Total $12,370.56
	Balance Due $12,370.56

Phone #	Fax #	E-mail
(360) 331-7813	(360) 331-7812	steph@eaglebuildingcompany.org

for your records

CHANGE ORDER

Eagle Building Company
11248 SR 525
Clinton, WA 98236
Phone: (360) 331-7813
Fax: (360) 331-7812

CHANGE ORDER NUMI 001

CUSTOMER: Port of South Whidbey

PROJECT: Food Booth Foundation Repair 2024-02

The Contract between Eagle Building Company and Port of South Whidbey ("Customer"), dated 05/28/2024, is changed as follows:

Add for additional excavation and CDF placement beyond original RFP scope.	**$8,685.00**
Add for epoxy connections required by engineer	**$2,685.00**
Subtotal	**$11,370.00**
Sales Tax	**$1,000.56**
Total	**$12,370.56**

- The original Contract Price was..... $38,998.40
- Net change by previously authorized Change Orders..... $0.00
- The Contract Price prior to this Change Order was..... $38,998.40
- This Change Order will [X] increase [ ] decrease the Contract Price by $12,370.56
- The new Contract Price* including this Change Order will be $51,368.96
- This Change Order will [X] increase [ ] decrease the Contract Time by approx. NA days.

Eagle Development Group, LLC d/b/a
Eagle Building Company

Date: 6/19/24

Customer

Date:_____

*The new contract price does not include claims or issues of delays, extended field or home office overhead. It includes only the cost of performing the work described above.

Invoice

EAGLE BUILDING COMPANY
11248 SR 525
Clinton, WA 98236

Date	Invoice #
6/19/2024	2813

Bill To:

Port of South Whidbey Island
PO Box 872
Freeland WA 98249

P.O. No.	Terms	Project
	Due on receipt	Food Booth Foundati...

Description	Amount
Food Booth Foundation Repair RFP 2024-02 - Complete as oof 6/24/24	35,844.12T
	Sales Tax (8.8%) $3,154.28
	Total $38,998.40
	Balance Due $38,998.40

Phone #	Fax #	E-mail
(360) 331-7813	(360) 331-7812	steph@eaglebuildingcompany.org

FACET
Formerly DCG / Watershed

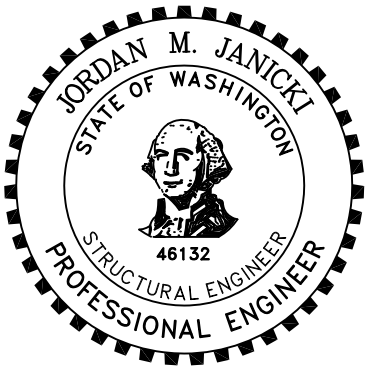
MEMORANDUM

TO: Curt Gordan, POSW District 3 Commissioner
Angi Mozer, POSW Executive Director

FROM: Raymond L. Tennal Jr., EIT
Jordan M. Janicki, PE, SE

DATE: June 25, 2024

RE: POSW Fairgrounds Food Pavilion
Special Inspection & New Bearing and Shear Walls



On June 24, 2024 at 1:00 pm, a site visit was made to Whidbey Island Fair Grounds to inspect the installation of drill and epoxy-embedded anchors tying the existing stem wall to the existing slab. At the time of the inspection, the Controlled Density Fill (CDF) had been placed per Facet's memo dated May 31, 2024. Anchor locations have been drilled to the depth of 12", penetrating the slab approximately 6". The hole was prepared per the instructions provided on the epoxy cartage, followed by placing the Simpson Set-3G with the expiration date of 03/06/26, filling the hole, and placing the ½"Ø all threaded into the hole. Based on the observations, the anchor is installed per the manufacturer's specifications.

Additionally, the owner and contractor inquired about details for installing the new bearing and shear wall, which were to be installed per the 1/SSK attached to the previous mention memo. Bearing studs should be provided under each rafter or at 16" o.c.

Shear walls require a minimum of 10 shear panels that are 32" long or 7 shear panels that are 48" long and are full wall height with 2x4 studs at 16" o.c. Provide at least one panel in each booth. Base and top plate connections shall be as specified in the 1/SSK provided in the May 31, 2024 memo. These piers can be located at the owner/contractor's discretion, such that they can avoid the location of existing openings, electrical outlets, and plumbing equipment. These piers should generally be provided at 16'-0" on center max. Holdowns are not required. Refer to Figure 2 for additional requirements for shear wall construction. Calculations are attached.

If there are any questions or comments, please contact Facet.

Figure 1 – Simpson Set-3G Epoxy

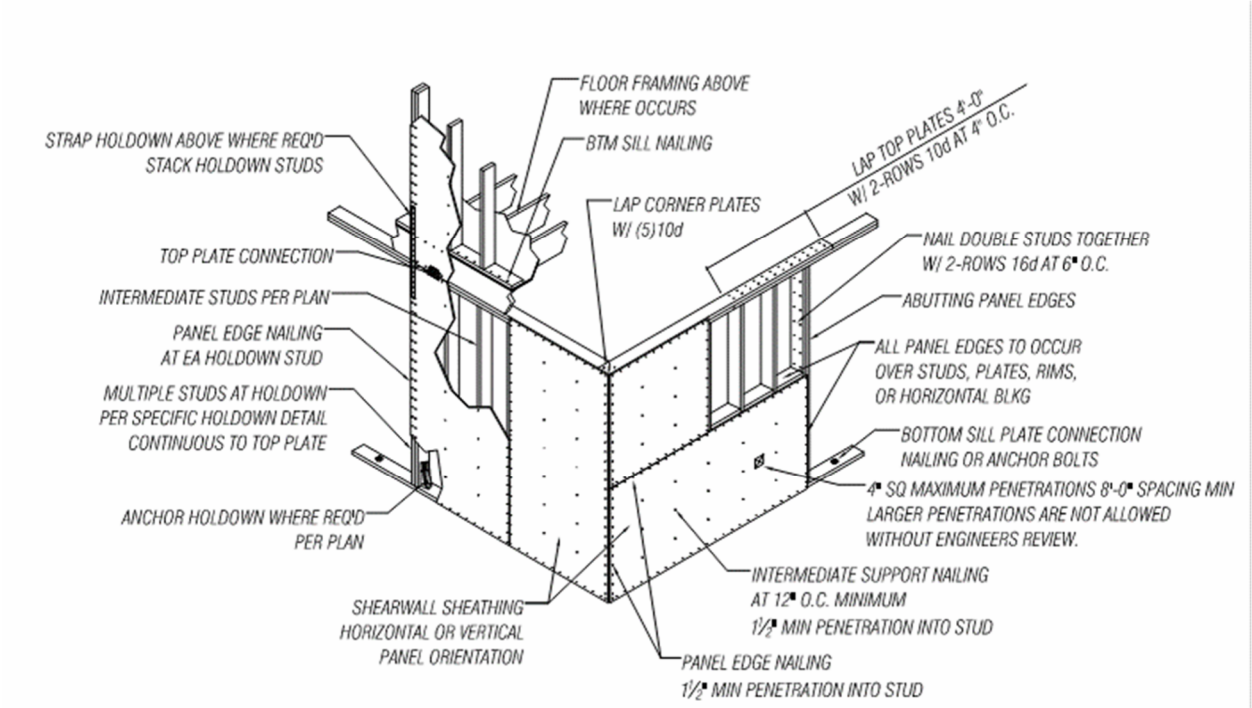


Figure 2 – Shearwall Framing Detail

FACET

STRUCTURAL CALCULATIONS

FOR

POSW FAIRGROUNDS
FOOD PAVILION
LANGLEY, WA.

June 28, 2024

DC-1

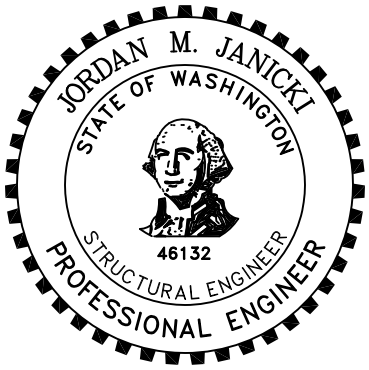
FACET

STRUCTURAL CALCULATIONS

DESIGN CRITERIA

PORT OF SOUTH WHIDBEY
FAIRGROUNDS FOOD PAVILION

LANGLEY, WA.



DC-2

FACET

Date: 6/25/2024
Made By: RLT

Project: **POSW East Food Pavilion**
Description: **Design Criteria**

Design Criteria

Code: *2021 International Building Code*

Seismic:

Latitude = *48.0318 North*
Longitude = *122.4029 West*
Spectral Response Acceleration, Ss & S1 = 1.400 & 0.501
Spectral Response Acceleration, Sds & Sd1 = 1.120 & 0.601
Soil Site Class, Fa & Fv = 1.200 & 1.799
Response Modification Factor, R = *6.5*

Wind:

Exposure = *C*
Basic Wind Speed = 110 mph
Topographical Terrain : *Flat*
Kzt = *1.00*

Live Loads:

Roof = *25 psf*
Floor = *40 psf*

Soils:

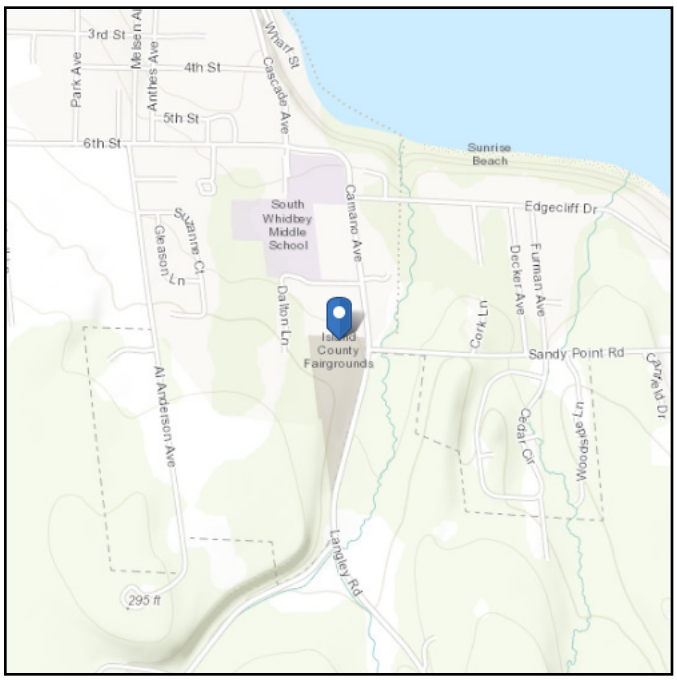
Assumed By Owner
Soil Bearing = 1,500 psf
Active Soil Pressure = 35 pcf
Passive Soil Pressure = 250 pcf
IBC Soil Site Classification = D
Frost Depth = 12 inches

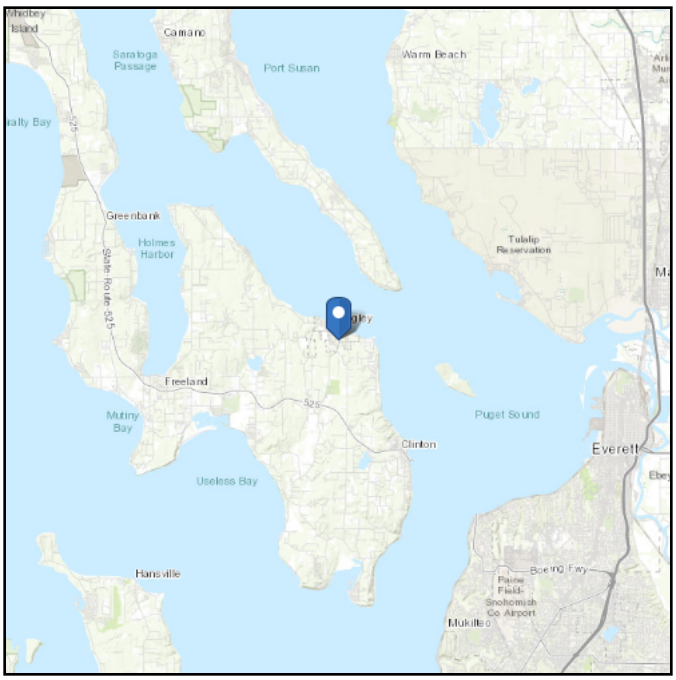
DC-3

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	48.031812
Risk Category:	II	**Longitude:**	-122.402914
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	162.8163532481809 ft (NAVD 88)





Wind

Results:

Wind Speed	98 Vmph
10-year MRI	67 Vmph
25-year MRI	74 Vmph
50-year MRI	78 Vmph
100-year MRI	83 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Mon Jun 24 2024

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

DC-4

Seismic

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

Results:

S_S :	1.4	S_{D1} :	N/A
S_1 :	0.501	T_L :	6
F_a :	1.2	PGA :	0.605
F_v :	N/A	PGA_M :	0.725
S_{MS} :	1.681	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.12	C_v :	1.38

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

Data Accessed: Mon Jun 24 2024

Date Source: USGS Seismic Design Maps

C-1

FACET

STRUCTURAL CALCULATIONS

CALCULATIONS

PORT OF SOUTH WHIDBEY
FAIRGROUNDS FOOD PAVILION

LANGLEY, WA.

C-FACET

Date: 6/25/2024
Made By: RLT

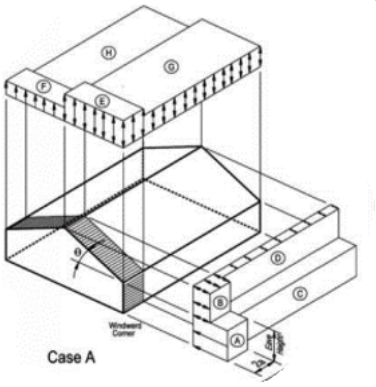
Project: POSW Food Pavilion
Description: Wind Base Shear

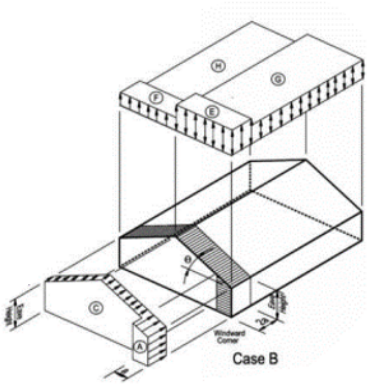
Assmptions:
Enclosed structure with simple diaphragm low-rised with flat, gable or hip roofs. Reference from ASCE 7-16

Site Data
Residence

Risk Category		I_w =	II		*Table 1.5-1*
Basic Wind Speed		V =	100	*mph*	*Figs 26.5-1 or 26.5-2*
Exposure Category			C		*Section 26.7*
Topographic Factor		K_{zt} =	1.00		*Section 26.8*
Mean roof height		h =	12.00	*ft*	
Adjustment Factor for Height & Exposure		λ =	1.21		*Figure 28.5-1*
Front/Back Dimension		B =	150		
Front/Back Roof Pitch:	0 :12	Θ_B =	0.00	°	Gable
Side/Side Dimension		L =	20.00		
End Zone Width		a_B =	3.00		
Side/Side Roof Pitch:	1.5 :12	Θ_L =	7.13	°	Hip
End Zone Width		a_L =	6.00		

Design wind pressure are determine from the following equation and Figure 28.5-1





ASCE 7-16 F28.5-1 for V= 100 mph

Roof Angle	Load Case	A	B	C	D
5	1	15.9	-8.2	10.5	-4.9
10	1	17.9	-7.4	11.9	-4.3
15	1	19.9	-6.6	13.3	-3.8
20	1	22.0	-5.8	14.6	-3.2
25	1	19.9	3.2	14.4	3.3
30	1	17.8	12.2	14.2	9.8
45	1	17.8	12.2	14.2	9.8
25	2	--	--	--	--
30	2	17.8	12.2	14.2	9.8
45	2	17.8	12.2	14.2	9.8

Design Wind Presures, p_s

$p_s = \lambda K_{zt} p_{s30}$

Direction	Roof Angle	HORIZONTAL LOAD (LRFD, psf) End zone Wall A	End zone Roof B	Interior zone Wall C	Interior zone Roof D
F/B	0.00	19.24	0.00	12.71	0.00
S/S	7.13	21.66	0.00	14.40	0.00

HORIZONTAL WIND FORCES:

Front/Back Direction:

Location		Width	Height	Plane	End Zone	End Zone A	End Zone B	Int Zone	Int Zone C	Int Zone D	Calc'd LRFD	Calc'd ASD	MIN Force	Force Used
		feet	feet		length	pressure (psf)		length	pressure (psf)		kips	kips	kips	kips
ROOF	Top Roof to Eave	150.0	2.50	roof	3.00	19.24	0.00	147.0	12.71	0.00	4.74	2.84	1.80	
	Eave to Midwall	150.0	3.88	wall	3.00	19.24	0.00	147.0	12.71	0.00	7.46	4.48	5.58	
										Σ =	12.20	7.32	7.38	**7.38**

Total Wind Base Shear (ASD, kips), V_{Side} = 7.38

Side/Side Direction:

Location		Width	Height	Plane	End Zone	End Zone A	End Zone B	Int Zone	Int Zone C	Int Zone D	Calc'd LRFD	Calc'd ASD	MIN Force	Force Used
		feet	feet		length	pressure		length	pressure		kips	kips	kips	kips
ROOF	Top Roof to Eave	20.0	1.50	roof	6.0	21.66	0.00	14.0	14.40	0.00	0.00	0.00	0.15	
	Eave to Midwall	20.0	3.88	wall	6.0	21.66	0.00	14.0	14.40	0.00	1.28	0.77	0.775	
										Σ =	1.28	0.77	0.93	**0.93**

Total Wind Base Shear (ASD, kips), V_{Side} = 0.93

FACET

Date: 6/25/2024
Made By: RLT

Project: POSW Food Pavilion
Description: Seismic Weights

DEAD LOAD WEIGHTS FOR SEISMIC CALCULATIONS:

Unit Roof Weight:	7	psf
Unit Floor Weight:	0	psf
Unit Exterior Wall Wt:	6	psf
Unit Interior Wall Wt:	6	psf

		AREA / LENGTH sf / ft	HEIGHT ft	UNIT WT. psf		Total Wt (lbs)	Sub-Total (kips)
ROOF LEVEL:	Roof	3200	1	7	=	22400	
	Ext. Wall Below	360	3.875	6	=	8370	
	Int. Wall Below	200	3.875	6	=	4650	
							35.4 Kips
Ground Level:	Ext. Wall Above	360	3.9	6	=	8370	
	Int. Wall Above	200	3.9	6	=	4650	
							13.0 Kips
	STRUCTURE WEIGHT FOR SEISMIC BASE SHEAR:						**35.4 Kips**
	TOTAL WEIGHT OF STRUCTURE:						**48.4 Kips**

FACET

Date: 6/25/2024
Made By: RLT

Project: POSW Food Pavilion
Description: Seismic Story Shear

ASCE 7-16

Seismic Use Group = **II** *From Table 1.5-1*
Site Classification = **D**
Geotech Report Provided = **No**

Refer to attached sheet for Map specified variables

S_S = 1.400 F_a = 1.200 *(Table 11.4-1)*
S_1 = 0.501 F_v = 1.799 *(Table 11.4-1)*
S_{DS} = 1.120 $= 0.67*F_a*S_s$ *(11.4-1&11.4-3)*
S_{D1} = 0.601 $= 0.67*F_v*S_1$ *(11.4-2&11.4-4)*
Building Height, h_n = 15.0 ft
Building Period Coefficients, C_T = 0.020 x= 0.750 *per Table 12.8-2*
Approx. Fundamental Period, T = 0.152 $= C_{T*}(h_n)^{0.75}$ *(12.8-7)*
Response Spectrum, S_a = 1.1200 *(11.4-5 &11.4-6)*
Response Modification Factor, R = 6.5
Occupancy Importance Factor, I = 1.0 *per Table 1.5-2*
Seismic Design Catergory = D *-11.6*
Redundancy Factor, r = Calculation Required
Calculated Redundancy Factor, r = 1.0

Seismic Response Coefficient

$C_s = S_{DS}/R/I$ = 0.172 *(12.8-2)*
$C_{s,\,MAX} = S_{D1}/T(R/I)$ = 0.606 *(12.8-3)*
$C_{s,\,MIN} = 0.044S_{DS*}I$ = 0.049 *(12.8-5)*

C_s = 0.172

Seismic Base Shear

Seismic Base Shear , V = 0.172 W *(12.8-1)*
W = 35.42 kips
V = 6.10 kips
$V_{final} = 0.7rV$ = 4.27 kips

Vertical Distribution of Seismic Forces

12.8.3

k = 1

Floor	Story Height H (ft)	Total Height h_x (ft)	Story Weight w_x (kips)	$w_x h_x^k$ (k-ft)	Story Force Fi (kips)	Story Shear V (kips)
Roof	7.75	7.75	35.4	274.5	**4.27**	**4.27**
Base	0.00	0.00	13.0	0.0	**0.00**	**4.27**
			Sum =	274.5		

C-6

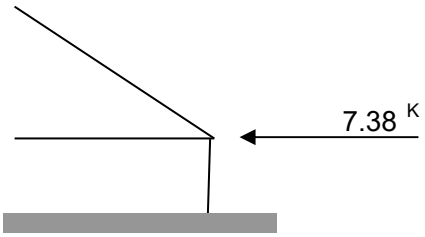
FACET

Date: 6/25/2024
Made By: RLT

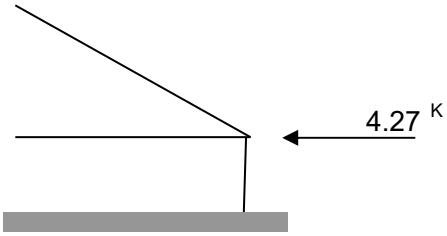
Project: POSW Food Pavilion
Description: Lateral Design Load

Level	Wind Front/Back (kips)	Wind Side (kips)	Seismic (kips)
Roof	7.38	0.93	4.27
Total	7.38	0.93	4.27

Controlling:
Front/Back - Wind
Side - Seismic



Front/Back Direction



Side/Side Direction

The following design review the shear wall requirements for shoring wall to be installed at the back wall (north side) of the east food pavilion building. This analysis studies the side/side direction and provided resistance for 50% of the 4.27 kips. The remainder of the lateral system is resisted by existing conditions.

C-7

FACET

Date: 6/25/2024
Made By: RLT

Project: POSW Food Pavilion
Description: Shear Wall Sheathing

AWC SDPWS 2015 Table 4.3A (Seismic)

Panel Grade	Nominal Thickness	Minimum Penetration	Common or Galv. Box Nail Size	Nail Spacing at Panel Edges 6" o.c.	4" o.c.	3" o.c.	2" o.c.
Wood Structural Panels - Sheathing	5/16	1 1/4	6d	360	540	700	900
	3/8			440	640	820	1060
	7/16	1 3/8	8d	480	700	900	1170
	15/32			520	760	980	1280
	15/32	1 1/2	10d	620	920	1200	1540
	19/32			680	1020	1330	1740

Stud Species:	HF	Sheathing Thickness:	7/16
Specific Gravity:	0.43	Shear Wall Nailing:	8d
Design Method	ASD, Ω	1-(0.5-SG)/Ω =	0.47
Factor:	2.00		

AWC SDPWS 2015 Table 4.3A (Seismic) Adjusted for Grade and Design Method

Panel Grade	Nominal Thickness	Minimum Penetration	Common or Galv. Box Nail Size	Nail Spacing at Panel Edges 6" o.c.	4" o.c.	3" o.c.	2" o.c.
Wood Structural Panels - Sheathing	5/16	1 1/4	6d	167	251	326	419
	3/8			205	298	381	493
	7/16	1 3/8	8d	223	326	419	544
	15/32			242	353	456	595
	15/32	1 1/2	10d	288	428	558	716
	19/32			316	474	618	809

Notes:

1) Unit shear capacity from SDPWS 2015 Table 4.3A are adjusted for design method.
2) Allowable shear values in framing members other than Douglas fir-larch shall be calculated by multiplying the shear capacities for nails in DF by 1-(0.5-SG).
3) Values for 3/8 and 7/16 ply may be increased to the values allowed for 15/32, if framing is spaced maximum of 16" o.c. or panels are applied long way across the studs.
4) Shaded values require 3x framing or Dbl 2x at all abutting panel edges.

Shear Wall Sheathing Used in Design

Panel Grade	Nominal Thickness	Minimum Penetration	Common or Galv. Box Nail Size	Nail Spacing at Panel Edges 8d at 6" o.c.	8d at 4" o.c.	8d at 3" o.c.	8d at 2" o.c.
Panel Sheathing	7/16	1 3/8	8d	242	353	456	595

FACET

Date: 6/25/2024
Made By: RLT

Project: POSW Food Pavilion
Description: Shear Wall Plate Connections

Species = **HF**
Base Plate = 2x Plate
Base Plate Thickness = 1 1/2 in
Floor/Roof Sheathing Thickness = 3/4 in

Base plate nailing

$$Z' = Z\,C_D C_M C_t$$

Applicability of Adjustment Factor for Connections per NDS Table 11.3.1

Duration Factor, C_D =	1.60	Wind or Seismic
Wet Service Factor, C_M =	1.00	Moisture content < 19%
Temperature Factor, C_t =	1.00	Temperatures < 150 °F
Total Adjustment Factor, Z' =	1.60	

Top plate/Rim connection

Hardware	Fasteners	Allowable Loads (lbs)						
		Each	24" o.c.	16" o.c.	12" o.c.	8" o.c.	12" o.c. ea. face	8" o.c. ea. Face
Simpson A35	(12) 8dx 1-1/2"	560	280	420	560	840	1120	1680
Simpson LTP4	(12) 8dx 1-1/2"	540	270	405	540	810	1080	1620

1) Values are based on Simpson C-C-2019 Catalog.
2) All capacities include adjustment for wind and seismic forces.

Base plate/Rim nailing - Single Shear Connection

Fasteners	Diameter (in)	Length (in)	Embed (in)	Adjustment Factor	Table Values	1 1/2 -in plate and 3/4 -in Flr Sheathing (lbs)				
						Per Nail	6" o.c.	4" o.c.	3" o.c.	2" o.c.
16d Box Nails	0.135	3.5	1.25	1.48	89	132	264	396	527	791
16d Sinker	0.148	3.25	1.00	1.08	102	110	221	331	441	662
16d Commons	0.162	3.5	1.25	1.23	122	151	301	452	602	904

Fasteners	Diameter (in)	Length (in)	Embed (in)	Adjustment Factor	Table Values	1 1/2 -in plate and 3/4 -in Flr Sheathing (lbs)				
						Per Nail	16" o.c.	8" o.c.	6" o.c.	4" o.c.
1/4"Øx4-1/2" SDS	0.25	4.5	2.25	1.44	190	274	205	410	547	821
1/4"Øx5" SDS	0.25	5	2.75	1.60	190	304	228	456	608	912
1/4"Øx6" SDS	0.25	6	3.75	1.60	190	304	228	456	608	912

1) Single shear values for 16d are based on NDS-2018 Table 12N.
2) Values have been reduced for penetration reduction per Table 12N footnote 3.
3) SDS values are based on values in Simpson C-F-2019TECHSUP catalog, page 79.
4) All values have been multiplied by adjustment factor indicated above.

Anchor Bolts - Single Shear Connection

Fasteners	Diameter (in)	Adjustment Factor	Table Values (lbs)	1 1/2 -in plate and 3/4 -in Flr Sheathing (lbs)					
				Per Bolt	48" o.c.	32" o.c.	24" o.c.	16" o.c.	8" o.c.
1/2"Ø Anchor Bolts	0.5	1.60	590	944	236	354	472	708	1416
5/8"Ø Anchor Bolts	0.625	1.60	860	1376	344	516	688	1032	2064
3/4"Ø Anchor Bolts	0.75	1.60	1200	1920	480	720	960	1440	2880
Simpson MASAP	---	---	1060	1060	265	398	530	795	1590

1) Single shear values for anchor bolts are based on NDS-2018 Table 12E.
2) Bolt bending yield strength, F_{yb} = 45,000 psi.
3) Dowel bearing strength, Fc = 7,500 psi.
4) Concrete compressive strength, f'_c = 2,500 psi.
5) All values have been multiplied by adjustment factor indicated above.
6) Standard installing for MASAP is assumed. Refer to Simpson catalog C-C-2019, page 29 for additional information.

FACET

Date: 6/25/2024
Made By: RLT

Project: POSW Food Pavilion
Description: Holdown and Straps

Floor to Floor Holdowns

Model	Post		Anchor			Allowable Load
	Min. Dim (IN)	Fasteners	Diameter	Centerline	Embedment	
MST37	3.00	(6) 1/4"Øx2 1/2 SDS	0.625	1.313	8	2,355
MST48	3.00	(10) 1/4"Øx2 1/2 SDS	0.625	1.313	8	3,640
MST60	3.00	(14) 1/4"Øx2 1/2 SDS	0.625	1.313	9	5,405
HDU11	5.50	(30) 1/4"Øx2 1/2 SDS	1.000	1.375	12	8,030

1) Refer to Simpson catalog C-C-2019, page 264 for additional information.
2) All loads have been adjusted for wind and seismic load duration (C_D = 1.6).
3) Holdowns straps to clear span floor diaphragm (16" max).

Shear Wall to Foundation Holdowns

Model	Post		Anchor			Allowable Load
	Min. Dim	Fasteners	Diameter	Centerline	Embedment	
HDU2	3.00	(6) 1/4"Øx2 1/2 SDS	0.625	1.313	8	2,215
HDU4	3.00	(10) 1/4"Øx2 1/2 SDS	0.625	1.313	8	3,285
HDU5	3.00	(14) 1/4"Øx2 1/2 SDS	0.625	1.313	9	4,340
HDU8	3.00	(20) 1/4"Øx2 1/2 SDS	0.875	1.375	10	5,820
HDU11	5.50	(30) 1/4"Øx2 1/2 SDS	1.000	1.375	12	8,030

1) Refer to Simpson catalog C-C-2019, page 53 for additional information.
2) All loads have been adjusted for wind and seismic load duration (C_D = 1.6).
3) See attached calculations for anchor bolt embedment length.
4) Holdowns may be installed with up to 18" above the top of concrete with no load reduction.

Strap Around Openings

Model	Required Fasteners ea. side of opening	Minimum Length (in)	Allowable Load
CS16	(22) 10d	16	1,705
CMSTC16	(58) 16d	27	4,690
CMST14	(66) 16d	36	6,475

1) Refer to Simpson catalog C-C-2019, page 267 for additional information.
2) All loads have been adjusted for wind and seismic load duration (C_D = 1.6).
3) See attached calculations for anchor bolt embedment length.
4) Holdowns may be installed with up to 18" above the top of concrete with no load reduction.
5) Use half of the required nails in each member being connected.

FACET

Date: 6/25/2024
Made By: RLT

Project: che
Description: Front-Back & Side-Side Shear Walls

Sheathing Thickness: 7/16 in
Shearwall Nailing: 8d Values for sheathing shear are based on studs at 16''o.c. and 15/32 sheathing.
Base Plate Nails: 16d Commons
Top Plate Hardware: Simpson LTP4
Anchor Bolts: 5/8"Ø Anchor Bolts
S_{DS}: 1.000 Seismic Controls

1st story

Front-Back
Input

Story shear(kips) = 4.38 2.19
Story height (ft) = 7.75
Total Width(ft) = 20.00

Story	Wall	Wall D (ft)	Wall Height (ft)	Opening Width (ft)	Opening Height (ft)	Opening to Edge (ft)	Plate to Opening (ft)	Trib.Width (ft)	% Sharing	Story V (kips)	Sum V (kips)	Roof Trib (ft)	Roof DL (psf)	Floor Trib (ft)	Floor DL (psf)	Wall DL (psf)	Story DL (klf)	Sum DL (klf)
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.12	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.12	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.12	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.12	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.12	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.12	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.12	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
1st	A.1	2.67	7.75	0.00	0.00	0.00	0.00	10.00	0.13	0.27	0.27	2.00	7.00	0.00	6.00	10.00	0.09	0.09
	Sum	21.34								2.19	2.19							

C-11

FACET

Date:	6/25/2024
Made By:	RLT
Project:	che
Description:	Front-Back & Side-Side Shear Walls

Sheathing Thickness: 7/16 in
Shearwall Nailing: 8d
Base Plate Nails: 16d Commons
Top Plate Hardware: Simpson LTP4
Anchor Bolts: 5/8"Ø Anchor Bolts
SDS: 1.000 Seismic Controls

1st story

Front-Back
Output

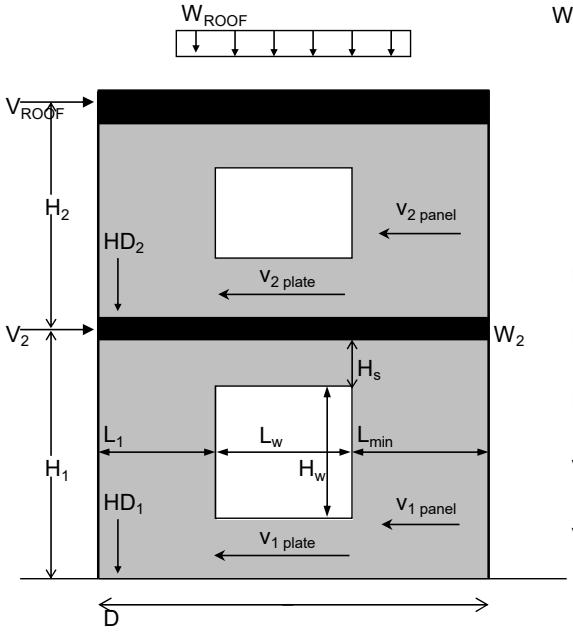
Story	Wall	Aspect Ratio[1] Wall	Aspect Ratio[1] Pier	Panel Shear Factor[2]	Panel Shear (plf)[3]	Panel Edge Nailing	Plate Shear (plf)[4]	Base Connection	BTM Plate Connection	Top Plate LTP4	Sum OTM (k-ft)[5]	RM (k-ft)[6]	Resultant HD (kips)[7]	Holdown
1st	A.1	2.91	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**
1st	A.1	2.91	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**
1st	A.1	2.91	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**
1st	A.1	2.91	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**
1st	A.1	2.91	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**
1st	A.1	2.91	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**
1st	A.1	2.91	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**
1st	A.1	2.90	0.00	1.13	**116**	**8d at 6" o.c.**	**103**	**A. Bolt**	**2x w/AB at 48" o.c.**	**at 24" o.c.**	2.12	0.33	**0.91**	**NA**

1) NDS 2018 (SDPWS 2015) Section 4.3.4 & Table 4.3.4. Maximum of wall ratio or pier ratio used.
2) NDS 2018 (SDPWS 2015) Section 4.3.4. If (h/b)> 2:1 the shear capacity shall be multiplied by the Aspect Ratio Factor (WSP = 1.25 - 0.125h/b).
3) Panel Shear = $(V/ L_{wall} - L_{opening})$*Panel Shear Factor
4) Plate Shear= V/L_{wall}
5) OTM = $(V*h_w) + OTM_{above}$, see diagram on SWCED .6-.7(.2sds)
6) RM = $(\omega_{DL}*L_w^2)/2$, see diagram on SWCED
7) Resultant = $(OTM - 0.6RM)/L_w$, see diagram on SWCED. RM is multiplied by a factor of 0.6 per ASCE 7-16 Section 2.4.5. If seismic controls, a factor of $(0.6-0.7(.2)S_{DS})$ is applied to the RM per ASCE 7-16 Section 12.4.2.2
8) Force at Windows = (Panel Shear * $L_{min}*(H_w/2 + H_s))/H_s$, see diagram on SWCED

C-12

Shear Wall Calculation Equation Diagram (SWCED)

Shear Wall with Window based on Shear Transfer



Where:

V_i = Story Shear
W_i = Story Dead Load
HD_i = Story Holdown
M_{OTi} = Story Over Turning Moment
M_{Ri} = Story Resisting Moment

$M_{OT\ ROOF} = V_{ROOF} \times H_2$

$M_{OT1} = [(V_2 + V_{ROOF}) \times H_1] + M_{OT\ ROOF}$

$M_{R\ ROOF} = 0.6 \times W_{ROOF} \times D^2/2$

$M_{R1} = 0.6 \times (W_2 + W_{ROOF}) \times D^2/2$

$HD_2 = (M_{OT\ ROOF} - M_{R\ ROOF})/(D - 6")$

$HD_1 = (M_{OT1} - M_{R1})/(D - 6")$

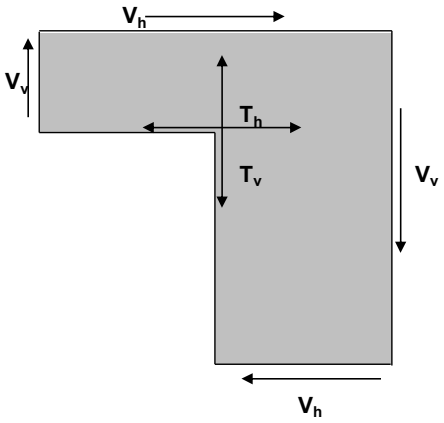
$V_{2\ panel} = V_{ROOF} / (L_1 + L_{min})$

$V_{1\ panel} = (V_{ROOF} + V_2) / (L_1 + L_{min})$

$V_{2\ plate} = V_{ROOF} / D$

$V_{1\ plate} = (V_{ROOF} + V_2) / D$

Force Transfer Around Window Calculation



$V_h = v_{i\ panel} \times L_{min}$

$V_v = HD_i$

$T_h = V_h\ (H_w / 2 + H_s) / H_s$

T_v = Is resisted by the continuous stud adjacent to the window.
No calculation is required.

CHANGE ORDER

Eagle Building Company
11248 SR 525
Clinton, WA 98236
Phone: (360) 331-7813
Fax: (360) 331-7812

CHANGE ORDER NUMBER: 002

CUSTOMER: Port of South Whidbey

PROJECT: Food Booth Foundation/Structural Repair Contract #2024-02

The Contract between Eagle Building Company and Port of South Whidbey ("Customer"), dated 05/28/2024, is changed as follows:

Add for additional wall framing and shear panel installation beyond original RFP scope- Per June 25, 2024, memo and 1/SSK May 31, 2024, by FACET Engineers.	**$29,520.00**

- **Includes required utility relocation & prevailing wage**
- **Excludes painting**

Sales Tax	**$2,597.76**
Total	**$32,117.76**

- The original Contract Price was……. $38,998.40
- Net change by previously authorized Change Orders……. $12,370.56
- The Contract Price prior to this Change Order was…… $51,368.96
- This Change Order will [X] increase [ ] decrease the Contract Price by …….. $32,117.76
- The new Contract Price* including this Change Order will be ……..… $83,486.72
- This Change Order will [X] increase [ ] decrease the Contract Time by approx. 5 days.

Eagle Development Group, LLC d/b/a
Eagle Building Company

Date: 6/27/2024

Customer

Date: _____

*The new contract price does not include claims or issues of delays, extended field or home office overhead. It includes only the cost of performing the work described above.