REAVELEY
Engineers

Structural Calculations
HAFB B591 ADDITION

2019.356

PREPARED FOR

Stantec

PREPARED BY

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reaveley.com

S-1

ATC Hazards by Location

Search Information

Coordinates:	41.105662, -111.969732
Elevation:	ft
Timestamp:	2019-10-24T15:31:47.199Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D

Basic Parameters

Name	Value	Description
S_S	1.326	MCE_R ground motion (period=0.2s)
S_1	0.477	MCE_R ground motion (period=1.0s)
S_{MS}	1.326	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	0.884	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.861	Coefficient of risk (0.2s)
CR_1	0.883	Coefficient of risk (1.0s)
PGA	0.604	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.664	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	1.326	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.539	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.072	Factored deterministic acceleration value (0.2s)
S1RT	0.477	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.54	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.237	Factored deterministic acceleration value (1.0s)
PGAd	1.202	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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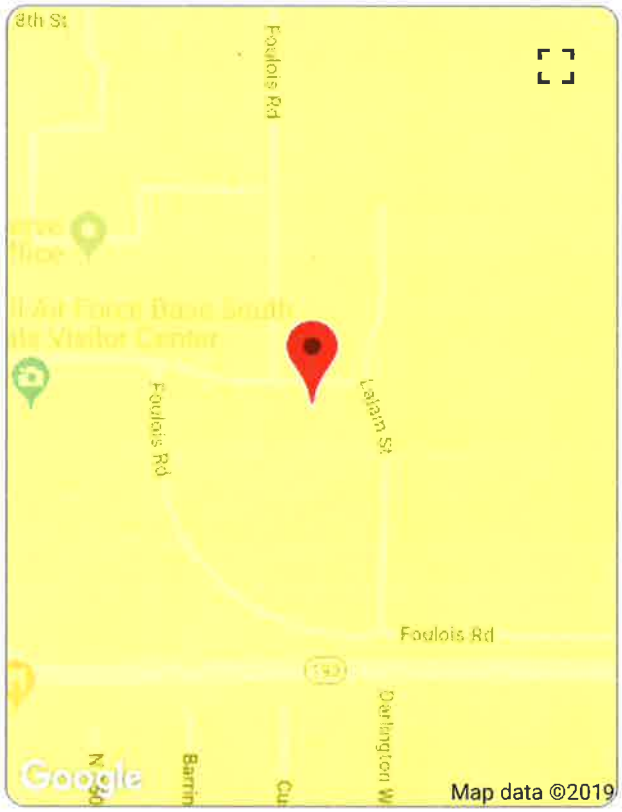
S-2

2018 Utah Ground Snow Load Map

Latitude: 41.106
Longitude: -111.970
Elevation: 4,743 ft

Ground Snow Load:
45 psf / 2.18 kPa



*This document is not legally binding. The user is urged to verify ground snow load values with the local authority having jurisdiction.

These ground snow load values represent 50-year ground snow load estimated value at a 2% probability of exceedance for the location given. The grid used in the map is 3350ft by 3350ft. Elevations for these grid cells were estimated by aggregating data from 100ft by 100ft USGS digital elevation models and may not coincide with the actual site elevation. These predictions are calculated using the process outlined in The Utah Snow Load Study.1

Final predictions given are bounded at a lower limit for a minimum ground snow load of 21 psf to meet ASCE 7. Estimated values for snow loads at elevations significantly higher than all nearby stations lead to unreasonably high snow load estimates, therefore, the predictions in the map are not allowed to extend beyond the highest 50-year station ground snow load of 429 psf. Elevations over 9,000 ft are also considered less accurate due to the limited number of stations at these elevations. The results shown in this report have included a warning if the results have reached or exceeded the upper limit.

While great efforts have been made to ensure these predictions are as accurate as possible, designers must use expert judgement to ensure that such predictions are appropriate for their particular project. The SEAU and the authors cannot accept responsibility for prediction errors or any consequences resulting therefrom.

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ROOF SNOW LOAD

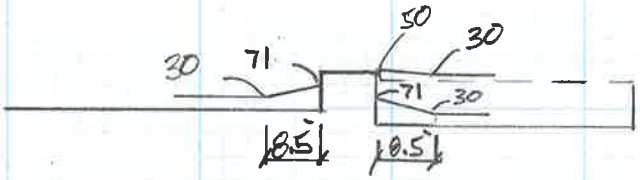
$P_f = .7 C_e C_t I_s P_g$

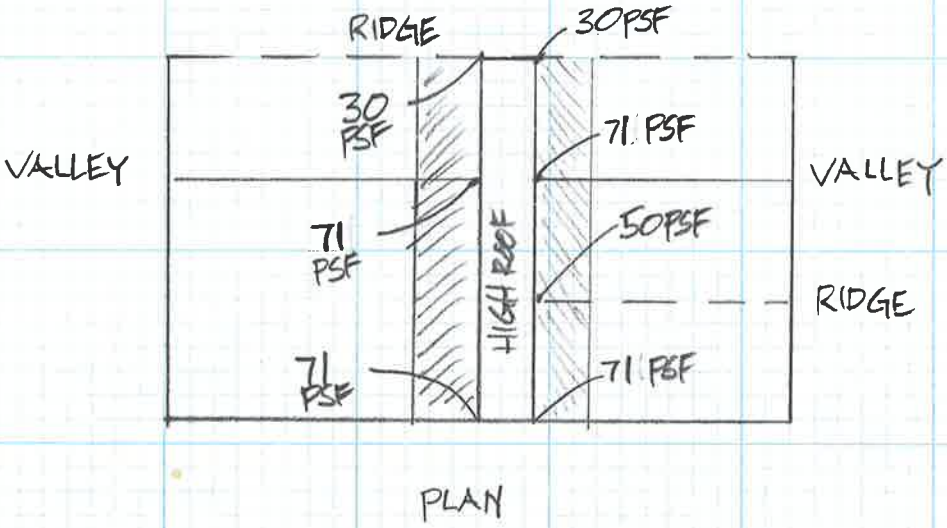
$= 28.35$ PSF

SAY 30 PSF

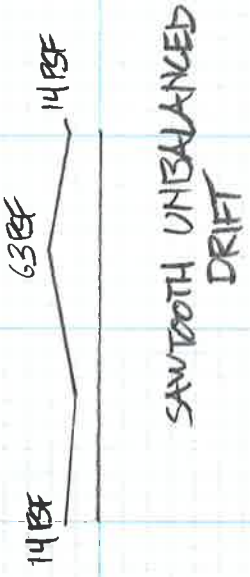
$C_e = .9$
$C_t = 1.0$
$I_s = 1.0$
$P_g = 45$ PSF

SNOW DRIFT





PLAN

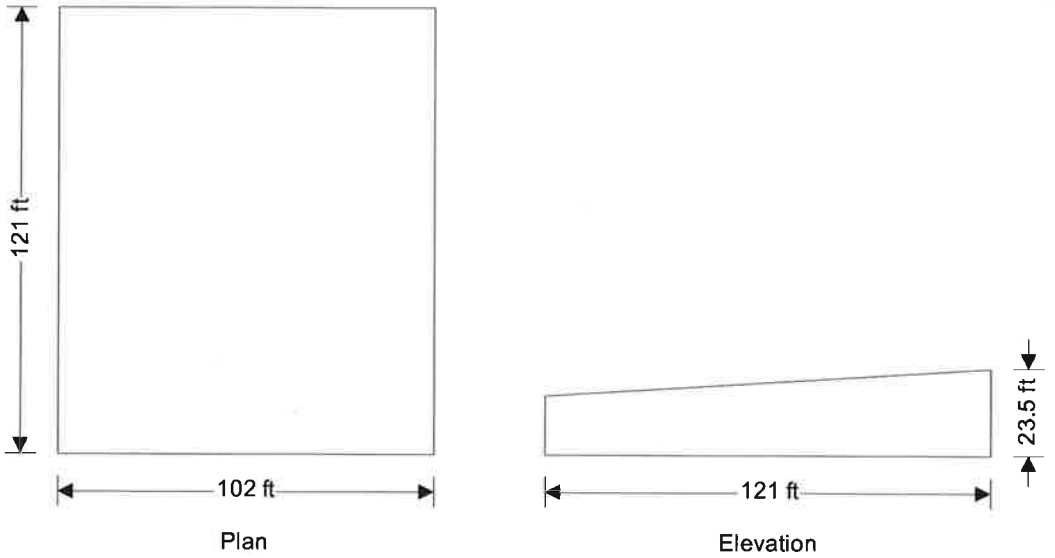


WIND LOADING

In accordance with ASCE7-16

Using the components and cladding design method

Tedds calculation version 2.1.05



Building data

Type of roof	Monoslope
Length of building	b = **102.00** ft
Width of building	d = **121.00** ft
Height to eaves	H = **16.00** ft
Pitch of roof	α_0 = **3.6** deg
Mean height	h = **16.00** ft

General wind load requirements

Basic wind speed	V = **115.0** mph
Risk category	IV
Velocity pressure exponent coef (Table 26.6-1)	K_d = **0.85**
Ground elevation above sea level	z_{gl} = **4700** ft
Ground elevation factor	$K_e = \exp(-0.0000362 \times z_{gl}/1ft)$ = **0.84**
Exposure category (cl 26.7.3)	C
Enclosure classification (cl.26.12)	Enclosed buildings
Internal pressure coef +ve (Table 26.13-1)	GC_{pi_p} = **0.18**
Internal pressure coef –ve (Table 26.13-1)	GC_{pi_n} = **-0.18**
Gust effect factor	G_f = **0.85**

Topography

Topography factor not significant	K_{zt} = 1.0

Velocity pressure

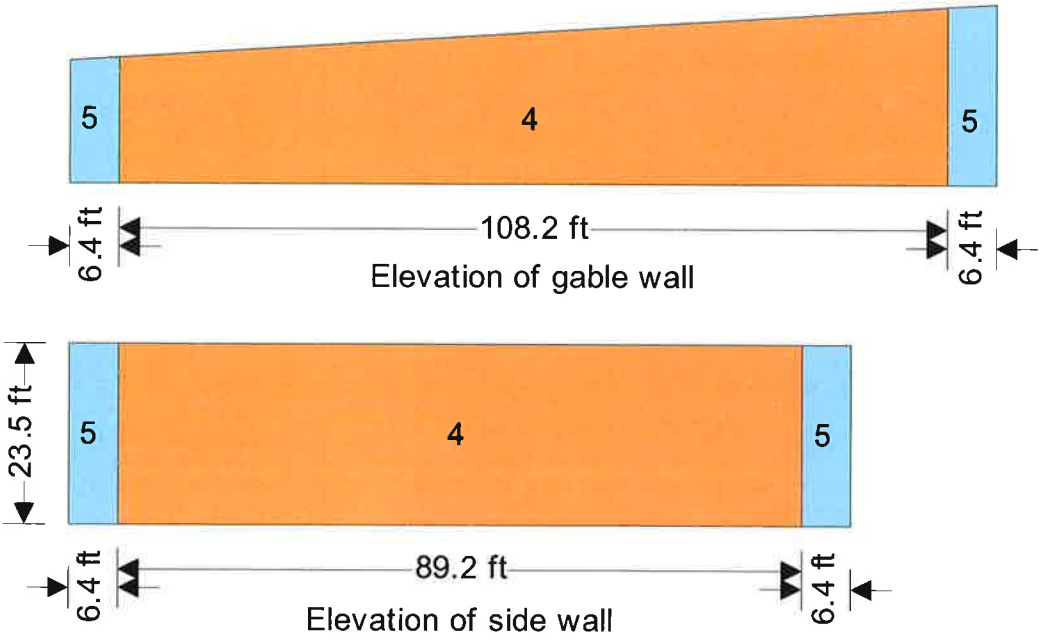
Velocity pressure coefficient (Table 26.10-1)	K_z = **0.86**
Velocity pressure	$q_h = 0.00256 \times K_z \times K_{zt} \times K_d \times K_e \times V^2 \times 1psf/mph^2$ = **20.9** psf

Peak velocity pressure for internal pressure

Peak velocity pressure – internal (as roof press.) q_i = **20.88** psf

Equations used in tables

Net pressure $p = q_h \times [GC_p - GC_{pi}]$

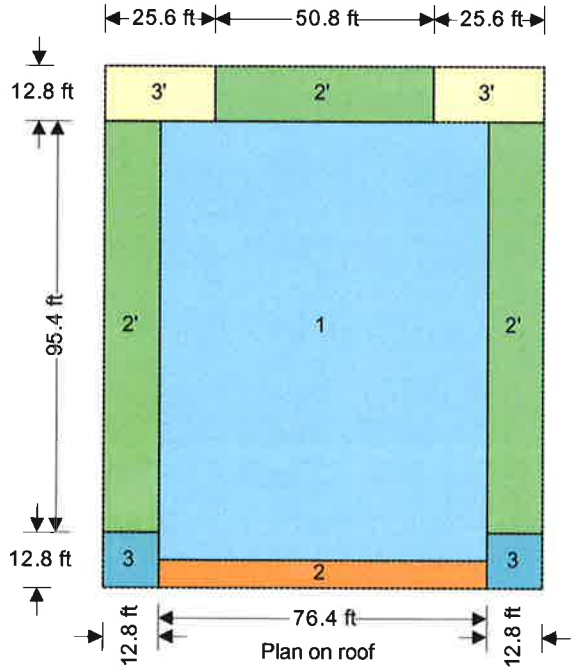


Components and cladding pressures - Roof (Figure 30.3-5A)

Component	Zone	Length (ft)	Width (ft)	Eff. area (ft^2)	+GC_p	-GC_p	Pres (+ve) (psf)	Pres (-ve) (psf)
<=10 sf	1	-	-	10.0	0.30	-1.10	10.0 #	-26.7
20 sf	1	-	-	20.0	0.27	-1.10	9.4 #	-26.7
50 sf	1	-	-	50.0	0.23	-1.10	8.6 #	-26.7
>100 sf	1	-	-	100.1	0.20	-1.10	7.9 #	-26.7
<=10 sf	2	-	-	10.0	0.30	-1.30	10.0 #	-30.9
20 sf	2	-	-	20.0	0.27	-1.27	9.4 #	-30.3
50 sf	2	-	-	50.0	0.23	-1.23	8.6 #	-29.4
>100 sf	2	-	-	100.1	0.20	-1.20	7.9 #	-28.8
<=10 sf	2'	-	-	10.0	0.30	-1.60	10.0 #	-37.2
20 sf	2'	-	-	20.0	0.27	-1.57	9.4 #	-36.5
50 sf	2'	-	-	50.0	0.23	-1.53	8.6 #	-35.7
>100 sf	2'	-	-	100.1	0.20	-1.50	7.9 #	-35.1
<=10 sf	3	-	-	10.0	0.30	-1.80	10.0 #	-41.3
20 sf	3	-	-	20.0	0.27	-1.62	9.4 #	-37.6
50 sf	3	-	-	50.0	0.23	-1.38	8.6 #	-32.6

Component	Zone	Length (ft)	Width (ft)	Eff. area (ft^2)	$+GC_p$	$-GC_p$	Pres (+ve) (psf)	Pres (-ve) (psf)
>100 sf	3	-	-	100.1	0.20	-1.20	7.9 #	-28.8
<=10 sf	3'	-	-	10.0	0.30	-2.60	10.0 #	-58.0
20 sf	3'	-	-	20.0	0.27	-2.30	9.4 #	-51.8
50 sf	3'	-	-	50.0	0.23	-1.90	8.6 #	-43.4
>100 sf	3'	-	-	100.1	0.20	-1.60	7.9 #	-37.2

The final net design wind pressure, including all permitted reductions, used in the design shall not be less than 16psf acting in either direction



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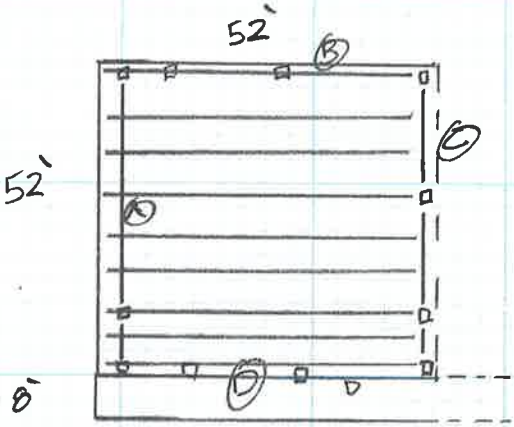
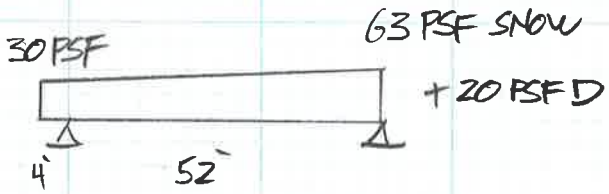
ROOF FRAMING



52' SPAN @ 58' O.C.



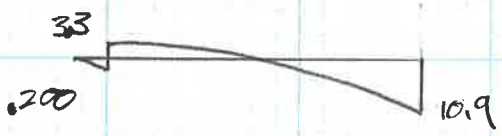
x58' = 116 PLF D + 174 ~ 365 PLF SNOW

$V_L = \frac{116(56)^2}{2}/62' + \frac{174(56)^2}{2}/52' + \frac{1}{2}(191 \times 56)(56/3)/52$

$= 3.5^K_D + 7.2^K_S$

$V_R = 116(56)(24')/52' + 174(56)(24')/52' + \frac{1}{2}(191 \times 56)(\frac{2}{3}56-4)/52'$

$= 3.0^K_D + 7.9^K_S$



$M_{MAX} = 131.7$ K-FT

$V_{MAX} = 10.9^K$

$W_{eq} = \frac{V(2)}{L} = 420$ PLF

$W_{eq} = \frac{M8}{l^2} = 390$ PLF

32 LH 10 531/315 OK ✓

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ROOF BEAMS

(A) SPAN = ~~41'~~

$w = (3.5^K_D + 7.2^K_S)/5.8' = 606 PLF_D + 1246 PLF_S$

$w_u = 1.2D + 1.6S = 2721$ PLF

$M_u = \frac{w_u (41)^2}{8} = 572$ K-FT

SAME AS GRID (E)

I_{RQD} FOR $\Delta_{LL} = .375" = \frac{5wl^4}{384 E \Delta} = 7285 IN^4$

W36X135 W33X141

~~W27X84~~ M_u ONLY $\Delta_{LL} = .96" = L/513$

I = 2850 $\Delta_{TOTAL} = 1.5" = L/330$

(B) SPAN = 29.5'

$w = 3'(20PSF) + 100PLF\ DL + 3'(55\ PSF_{(AVE)})\ SL$

$= 160 PLF_D + 165 PLF_S$

$M_u = \frac{456 PLF (29.5)^2}{8} = 49.6$ K-FT

I_{RQD} FOR $\Delta_{LL} = .35" = 49.4 IN^4$

W14X22 I = 199 ok ✓

(C) SPAN = 17.33'

$w = (3.0^K_D + 7.9^K_S)/5.78' = 519 PLF_D + 1367 PLF_S$

$+ 21$

$540 PLF_D$

$M_u = \frac{2835 PLF (17.33)^2}{8} = 107$ K-FT

I FOR $\Delta_{TOTAL} = L/360 = .58" \rightarrow 231 IN^4$

W14X26 I = 245 W^4 ok ✓

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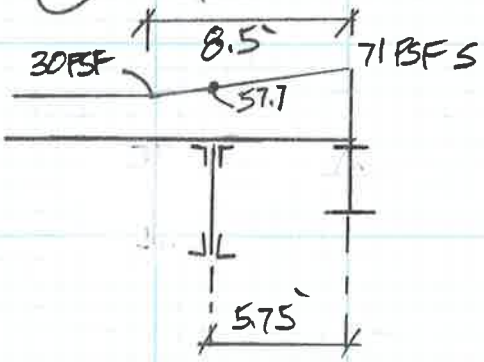
ROOF BEAMS CONTINUED

(D) SPAN = 23'



$R_S = \frac{1}{2}(57.7)(5.75') + \frac{2}{3}(\frac{1}{2})(5.75')(13.3\,PSF)$

$= 192\ PLF_S$

$W = 20\,PSF_{ROOF}(\frac{5.75}{2} + 4.5') + 6.5(15\,PSF)_{WALL} + 25\,PLF_{BEAM}\ DL$

$+ 192 + 4.5'(30\,PSF)\ SL$

$= 270\,PLF_D + 327\,PLF_S$

$M_U = \frac{847(23)^2}{8} = 56\ K\text{-}FT$

I FOR $\Delta_{TOTAL} = L/360 = .77'' \rightarrow 168\ IN^4$

W14X22 $I = 199\ IN^4$

$\phi M_n = 125\ K\text{-}FT$ ok ✓

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HIGH ROOF FRAMING

SPAN = 8' CLEAR

W = 15 PSF D + 30 SNOW

JOISTS @ 2' O.C. W = 90 PLF

$M = \frac{90(8)^2}{8} = 720$ LB-FT $\times 12 = 8.64$ K-IN

800S162-54 $M_{ALLOW} = 41.84$ K-IN

OK ✓

SHALLOW END

400S162-54 $M_{ALLOW} = 15.96$ K-IN

SPACE AT 16" O.C ✓

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OVERBUILD ROOF WALL

$H_{MAX} = 7'$

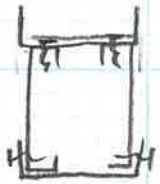
$W = 4.5'(15\ PSF_{D} + 30_{SNOW})_{ROOF} + 7'(15\ PSF)_{WALL}$

$= 175\ PLF_{D} + 135\ PLF_{SNOW}$

EXIST Z-PURLINS @ 6' O.C.

$M = \frac{Wl^2}{10} = \frac{310(6^2)}{10} = 1.1\ K\text{-}FT \times 12 = 13.4\ K\text{-}IN$

BOX BEAM ok ✓



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FOOTINGS

ALLOWABLE SOIL BRG = 3000 PSF PER BASE DESIGN STD.

J/8 $P = 17.36' \times 40' (250 + 30 \text{ SNOW})$

$= 17.36^{K}_{D} + 20.83^{K}_{S} = 38.19^{K}$

$38.19 / 3^{KSF} = 12.7 \text{ SQFT}$ FS 4.0 OK ✓

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SEISMIC

$V = C_S W$

$C_S = \frac{S_{DS} I \rho}{R}$

$= .354$

$S_{DS} = .884$

$I = 1.0$

$\rho = 1.3$

$R = 3.25$

$W = 60' \times 84' (25 PSF_D) + (60+84+84)\left(\frac{16'}{2}\right)(15 PSF)$

$= 126^K$ ROOF $+ 27.36^K$ WALLS

$= 153.36^K$

$V = 54.23^K$ / 2 BRACES IN EACH DIRECTION

$= 27.11^K$

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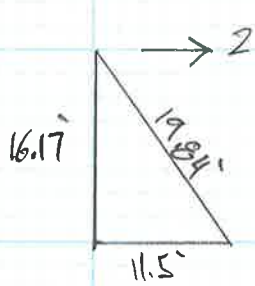
BRACE FORCES

MAX BRACE FORCE

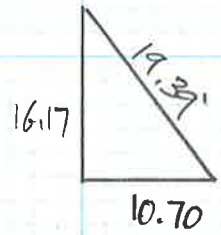
GRID J



$P_u = T_u = \frac{19.84}{11.5}\left(\frac{27.11}{2}\right) = 23.4^k$

$l_u = .45(19.84') = 8.93'$

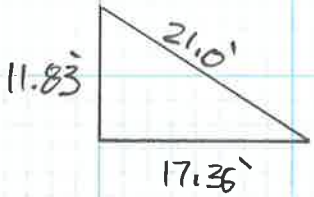
GRID 11



$P_u = T_u \quad \frac{19.39}{10.7}\left(\frac{27.11}{2}\right) = 24.56^k$

$l_u = .45(19.39') = 8.73'$

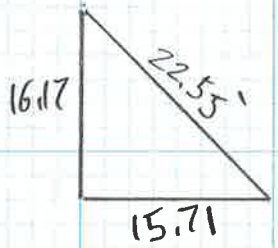
GRID E



$P_u = T_u = \frac{21}{17.36}\left(\frac{27.11}{2}\right) = 16.4^k$

$l_u = 21(.45) = 9.45'$

GRID 7



$P_u = T_u = \frac{22.55}{15.71}\left(\frac{27.11}{2}\right) = 19.45^k$

$l_u = (.45)(22.55) = 10.15'$

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BRACE FRAME GUSSET PL
VERTICAL & HORIZ WELDS

BRACE FORCE = 133.7 K

GRID J $V = \frac{16.17}{19.84}(133.7^k) = 109^k$

$H = \frac{11.5}{19.84}(133.7^k) = 77.5^k$

GRID 11 $V = \frac{16.17}{19.39}(133.7) = 111.5^k$

$H = \frac{10.7}{19.39}(133.7) = 72.7^k$

GRID E $V = \frac{11.83}{21.0}(133.7) = 75.5^k$

$H = \frac{17.36}{21.0}(133.7) = 110.5^k$

GRID 7 $V = \frac{16.17}{22.55}(133.7) = 96^k$

$H = \frac{15.71}{22.55}(133.7) = 93.1^k$

$V_{MAX} = 111.5^k$ L OF 5/16 WELD $= \frac{111.5}{(.6)(.75)(70)(5/16)(.707)} = 16''$

$H_{MAX} = 93.1^k$ L OF 5/16 WELD $= 14''$

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ϕP_n HSS 5.0X.25 @ l_u = 10.15'

= 95.9^K @ 11'-0 (AISC TABLE 4-5) ok ✓

ϕT_n NET SECTION

O.D = 5.0"
I.D = 4.5"

& LENGTH = πD = π(4.75") = 14.92"

A_{NET} = (14.92 - 2")(.25")

= 3.23 in^2

3.23 in^2 (46ksi)(.9) = 133.7^K ok ✓

No COVER PL REQ.

l_{WELD} = $\frac{133.7^K}{(.6)(.75)(70)(5/16)(.707)}$ = 19.2" (24" OF 1/4 WELD)

~~4 LEGS x 5" = 20" ok ✓~~

USE 4 LEGS OF 6" OF 1/4" FILLET WELD

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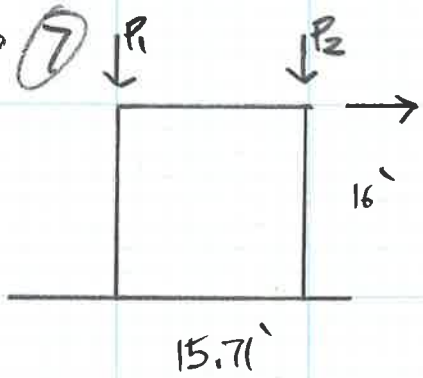
BRACE FRAME FTG

GRID (7)



$P_1 = (40')\left(\frac{17.36'}{2} - 3'\right)(25D + 30S)$

$= 5.7^K_D + 6.9^K_S$

$P_2 = \frac{38.66'}{2}(3')(25D + 30S)$

$= 1.45^K_D + 1.74^K_S$

$M_E = (.7)(1.75)(27.11)(6')$

$= 228\ K\text{-}FT$

$.6D = 4.3^K$

$P_E = 228 / 15.71'$

$= 14.5^K$

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Calculation Sheet #: S-18

RIGID MAT FOOTING DESIGN

ACI 318 CODE AND COMMENTARY

Project: HAFB B591 Addition
Designation: Grid 7 BF Ftg

Engineer: MB
Date: May-20

Sign Convention: Downward point and uniform loads are positive. Right hand rule applies for moments. For positive moments thumb points into the screen.

Footing		Incr.		Material Properties		Cover		Seismic Criteria		
Width:	5.0	0.5	ft	f'c:	5 ksi	Top bars:	2 in	Sds:	0.884	g
Length:	20.0	0.5	ft	fy:	60 ksi	Bottom bars:	3.5 in			
Thickness:	18	1	in	Qa:	3 ksf	Reverse E/W?	y	ρ:	1	
Unit Weight:	150	pcf		% Increase:	33%					

Point Loads (kips)

	D	L	Lr or S or R	E	W	Loc. (ft)
1	5.7		6.9			2.14
2	1.45		1.74			17.86
3						
4						
5						
6						
7						
8						
9						
10						

Mom Loads(k-ft)

	D	L	Lr or S or R	E	W	Loc. (ft)
1				171		8
2						
3						
4						
5						
6						
7						
8						
9						
10						

☑ ☑ Allow Increase

Uniform Loads (klf)

	D	L	Lr or S or R	E	W	Starts	Ends
1	0.24					2.14	20.0
2							
3							
4							
5							
6							
7							
8							
9							
10							

case	Pressure (ksf)	Pressure/Qa
1	0.4	0.1
2	0.4	0.1
3	0.6	0.2
4	0.6	0.2
5a	0.4	0.1
5br	0.8	0.2
6a	0.6	0.1
6br	0.9	0.2
7	0.3	0.1
8r	1.2	0.3

Service Combinations

case	D	L	Lr or S or R	E	W
1	1.00				
2	1.00	1.00			
3	1.00		1.00		
4	1.00	0.75	0.75		
5a	1.00				0.60
5b	1.12			0.70	
6a	1.00	0.75	0.75		0.45
6b	1.09	0.75	0.75	0.53	
7	0.60				0.60
8	0.48			0.70	

Factored Combinations

case	D	L	Lr or S or R	E	W
1	1.4				
2	1.2	1.6	0.5		
3a	1.2	1.0	1.6		
3b	1.2		1.6		0.5
4	1.2	1.0	0.5		1.0
5	1.4	1.0	0.2	1.0	
6	0.9				1.0
7	0.7			1.0	
A	1				
B	1				

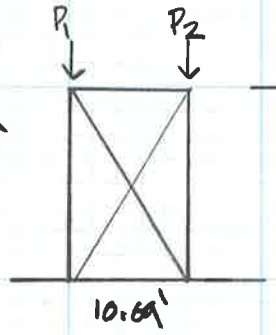
REAVELEY Engineers

THE STRENGTH BEHIND YOUR VISION

PROJECT HAFB B591 ADDITION DATE JAN 2020 BY M. BUEHNER

BRACE FRAME FTGS

GRID (11) & (J)



$\rightarrow V_S = 27.11^K$

$P_1 = (40')\frac{11.5'}{2}(25_D) + 4' \times 5.4'(20_D) + 4' \times 6'(15_D)$

$= 12^K_D + 14.5^K_S$

$P_2 = \frac{29.19'}{2}(3')(25\ PSF) + \frac{29.19'}{2}(5')(15\ PSF) + 29.19'(4')(20\ PSF)$

$= 3.0^K + 4.6^K_S$

$.6D + .7E \times 75\% = 9^K_D + 228\ K\text{-}FT$

USE 16' x 5' x 24" t

Calculation Sheet #: S-20

REAVELEY Engineers

RIGID MAT FOOTING DESIGN

ACI 318 CODE AND COMMENTARY

Project: HAFB B591 Addition
Designation: Grid 11 BF Ftg

Engineer: MB
Date: May-20

Sign Convention: Downward point and uniform loads are positive. Right hand rule applies for moments. For positive moments thumb points into the screen.

		Incr.		Material Properties	Cover	Seismic Criteria
Footing Width:	5.0	0.5	ft	f'c: 5 ksi	Top bars: 2 in	Sds: 0.884 g
Length:	16.0	0.5	ft	fy: 60 ksi	Bottom bars: 3.5 in	ρ: 1
Thickness:	24	1	in	Qa: 3 ksf	Reverse E/W? y	
Unit Weight:	150	pcf		% Increase: 33%	ONE OR MORE LOAD CASES UNSTABLE!!	

Point Loads (kips)

	D	L	Lr or S or R	E	W	Loc. (ft)
1	12		14.5			2.6
2	3		4.6			13.4
3						
4						
5						
6						
7						
8						
9						
10						

Mom Loads(k-ft)

	D	L	Lr or S or R	E	W	Loc. (ft)
1				228		8

☑ ☑ Allow Increase

Uniform Loads (klf)

	D	L	Lr or S or R	E	W	Starts	Ends
1	0.3					0	16.0
2							
3							
4							
5							
6							
7							
8							
9							
10							

case	Pressure (ksf)	Pressure/Qa
1	0.8	0.3
2	0.8	0.3
3	1.3	0.4
4	1.1	0.4
5a	0.8	0.2
5br	1.8	0.5
6a	1.1	0.3
6br	1.8	0.5
7	0.5	0.1
8r	10000.0	2506.3

ALLOWABLE SOIL PRESSURE EXCEEDED FOR ONE OR MORE CASES!!

Service Combinations

case	D	L	Lr or S or R	E	W
1	1.00				
2	1.00	1.00			
3	1.00		1.00		
4	1.00	0.75	0.75		
5a	1.00				0.60
5b	1.12			0.70	
6a	1.00	0.75	0.75		0.45
6b	1.09	0.75	0.75	0.53	
7	0.60				0.60
8	0.48			0.70	

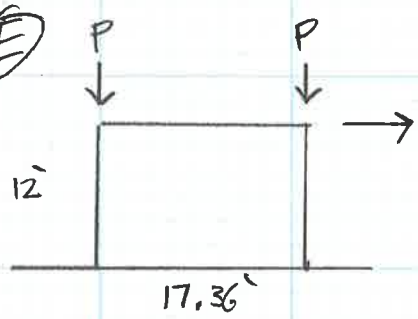
Factored Combinations

case	D	L	Lr or S or R	E	W
1	1.4				
2	1.2	1.6	0.5		
3a	1.2	1.0	1.6		
3b	1.2		1.6		0.5
4	1.2	1.0	0.5		1.0
5	1.4	1.0	0.2	1.0	
6	0.9				1.0
7	0.7			1.0	
A	1				
B	1				

PROJECT HAFB B501 ADDITION DATE JAN 2020 BY M. BUEHNER

BRACE FRAME FTGS

GRID (E)



$P = 17.36'(25D + 30S)(40')$
$= 17.36^K D + 20.83^K S$

$M = 27.11(12')(.7)(.75)$
$= 171\ K\text{-}FT$

$.6D = 10.4^K$

$P_E = 171/17.36' = 9.84^K$

$P_{E\,MAX} = 9.84 + 17.36 = 27.2^K$

$P_{E\,MIN} = -9.84 + 17.36 = 7.52^K$ NO UPLIFT

$P_{DTL} = 38.2^K$

$38.2^K / 3\ KSF \rightarrow$ NEED 13 SQFT

$= 4' \times 3.25'$
$= 5' \times 2.6'$
$= 6' \times 2.17'$

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PROJECT HAFB B591 ADDITION DATE APRIL 2020 BY M. BUEHNER

- BLAST OVERPRESSURE

UFC 4-010-01 TABLE D-1

PRIMARY GATHERING STRUCTURE – LOW LEVEL OF PROTECTION

TNT WEIGHT I = 220 LBS = W

STANDOFF DIST = 730 FEET (ROAD – BUILDING)

OVER PRESS: $K = \frac{DIST}{\sqrt[3]{W}} = \frac{730}{\sqrt[3]{220}} = 121$

FOR K = 121 OVERPRESSURE = .30 PSI

$(.3\ PSI)\left(144\ IN^2/FT^2\right) = 43.2\ PSF$

PROJECT HAFB B591 ADDITON DATE APRIL 2020 BY M. BUEHNER

WEST WALL WIND GIRT DESIGN FOR BLAST

SPAN = 17.365'

- HEADER TRIB HGT = 6.5'
- SILL " = 4.0'

W_U = 6.5'(43.2 PSF) = 281 PLF

(4') " 173 PLF

$M_U = \frac{W_U L^2}{8}$ = 10.6 K-FT

6.52 K-FT

- HEADER W_{VERT} = 8.5'(20 PSF) = 170 PLF

$M_{U\ VERT} = \frac{1.4(170)(17.365')^2}{8}$ = 8.97 K-FT

TRY HSS 5X5X1/4 $\phi M_n = (.9)(65ksi)(7.61)/12$

= 37.1 K-FT

$\frac{10.6}{37.1} + \frac{8.97}{37.1} = .53 < 1.0$ ok ✓

- SILL M_U = 6.52 K-FT

HSS 5X2X1/4 $Z_x = 4.27\ in^3$

ϕM_n = 20.8 K-FT ok ✓

REACTION R_U = 17.365'(281 PLF) = 4.88^k

PROJECT HAFB B591 ADDITION DATE APRIL 2020 BY M. BUEHNER

NORTH WALL WINDOW/DOOR JAMBS - BLAST

TRIB WIDTH = $\frac{3'-4 + 1'-4}{2} = 2'-4"$

$W_u = 2.33' (43.2\ PSF) = 101\ PLF$

SPAN = 14' $M_u = \frac{101(14^2)}{8} = 2.47\ K\text{-}FT \times 12 = 29.6\ K\text{-}IN$

USE 2 - 600S162-54 $M_{allow} = 55.52\ K\text{-}IN$

dkv

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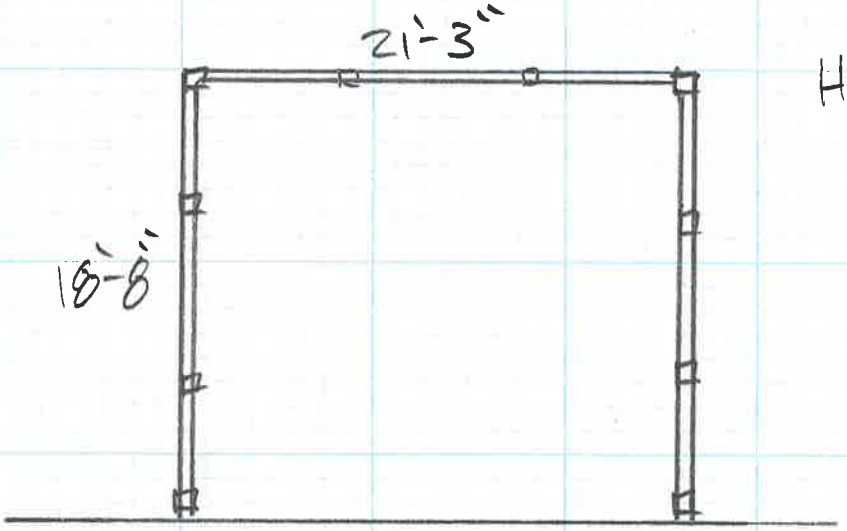
THE STRENGTH BEHIND YOUR VISION

PROJECT HAEB BSGI ADDITION DATE MARCH 2020 BY M. BUEHNER

MECH ENCLOSURE



HEIGHT = 9'-0

MAX POST SPACING = 7' WIND = 30 PSF

$M_U = \frac{30\,PSF(7')(9')^2}{2} = 8.5\ K\text{-}FT$

HSS 3X3X$\frac{1}{4}$ $\phi M_n = \frac{(.9)(46)(2.48\,IN^3)}{12}$

$= 8.55\ K\text{-}FT$ OK ✓