PCS Structural Solutions

Seattle | 1011 Western Avenue, Suite 810 | Seattle, WA 98104 | 206.292.5076
Tacoma | 1250 Pacific Avenue, Suite 701 | Tacoma, WA 98402 | 253.383.2797
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PRCTI20250145

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

City of Puyallup
Building
REVIEWED FOR COMPLIANCE
BSnowden
03/13/2025
1:47:31 PM

CITY OF PUYALLUP
STATE OF WASHINGTON

STRUCTURAL CALCULATIONS

FOR

MHS GOOD SAMARITAN HOSPITAL
IR ROOM EQUIPMENT REPLACEMENT
401 15TH AVE SE
PUYALLUP, WA 98372

PREPARED BY
PCS STRUCTURAL *SOLUTIONS*

TODD PAUL PARKE
STATE OF WASHINGTON
48217
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

MARCH 11, 2025
25-078

Calculations required to be provided by the Permittee on site for all Inspections

GOOD SAM HOSPITAL X-RAY AND IR ROOM EQUIPMENT Replacement

The purpose of these calculations is to

1.Demonstrate that the anchorage and support for Imaging detector, Patient table and their system components are structurally adequate.

2.Verify Existing Sturtcure can support the proposed equipment

Design Criteria (IBC 2018)

Risk Category:	IV
Site Class:	D(From GeoReport)
Short-Period Response Coefficient:	$S_{DS} := 1.013$

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Seismic

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

Results:

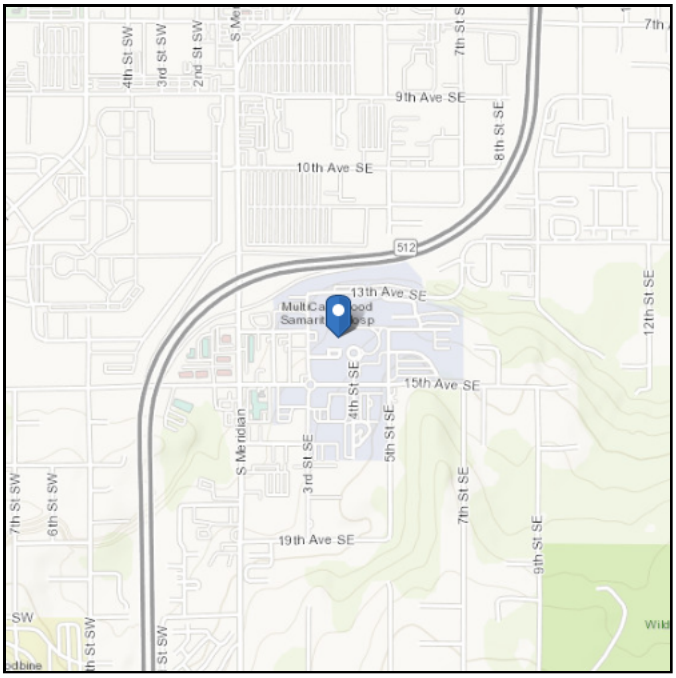
S_S :	1.267	S_{D1} :	N/A
S_1 :	0.436	T_L :	6
F_a :	1.2	PGA :	0.5
F_v :	N/A	PGA_M :	0.6
S_{MS} :	1.52	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1.5
S_{DS} :	1.013	C_v :	1.353

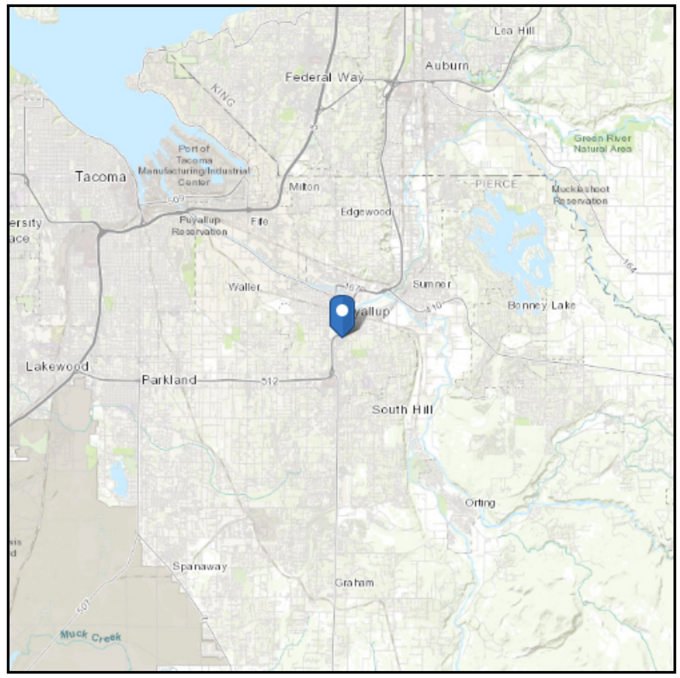
ASCE Hazards Report

Address:
401 15th Ave SE
Puyallup, Washington
98372

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

Latitude: 47.178536
Longitude: -122.290015
Elevation: 132.37311568935164 ft (NAVD 88)





Seismic

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Results:

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S_{MS} :	1.52	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1.5
S_{DS} :	1.013	C_v :	1.353

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

Data Accessed: Wed Nov 27 2024

Date Source: USGS Seismic Design Maps

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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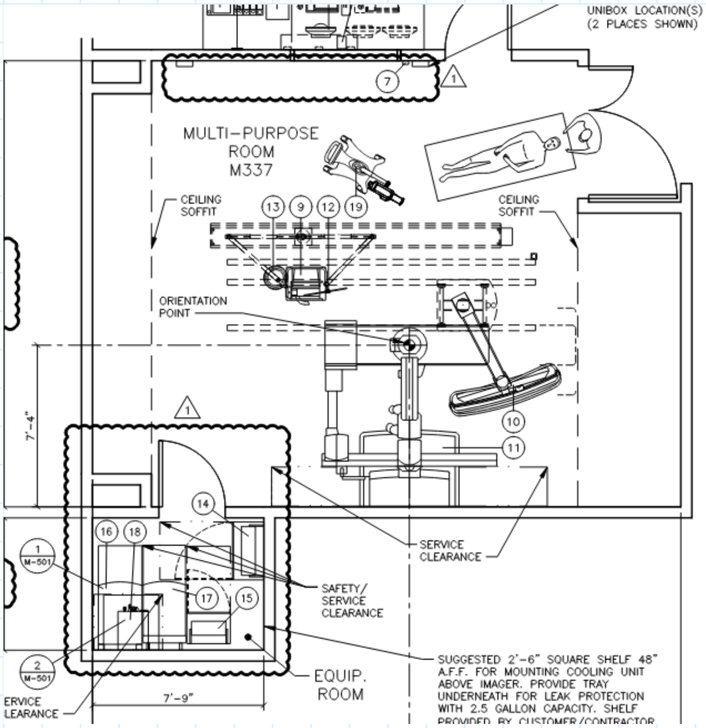
Overview of New Equipmemt IR ROOM (Level 3)



10	DCS LARGE DISPLAY (CS REQUIRED)	D1	555	
11	ARTIS ZEE MULTI–PURPOSE UNIT	P1	4,469	
12	UPPER BODY RADIATION SHIELD 4 M TRACK	–	196	
13	MAVIG LAMP	–	48	
14	POLYDOROS A100 (POWER UNIT 1)	PU1	662	
15	SYSTEM CONTROL CABINET	SC1	594	
16	AXIS IMAGE SYSTEM	IS	331	
17	LARGE DISPLAY CONTAINER (CS REQUIRED)	LDC	253	
18	TUBE COOLING UNIT	CU	80	
19	MEDRAD ARTERION INJECTOR PEDESTAL SYSTEM (INTEGRATED)	–	146	
20	EATON 9355 15KVA UPS AND BATTERY	UPS	755	
21	EATON 9355 OUTPUT TRANSFORMER CABINET	–	490	
22	EATON 9355 REMOTE MONITORING DEVICE	RMD	0.5	

2.1. ARTIS ZEE MULTI-PURPOSE UNIT

Design Forces

Per ASCE 7-16 Chapter 13 - Seismic Design Requirements for Non-Structural Components

Seismic Coefficients per Table 13.6-1, Other Mechanical and Electrical Components:

Component Importance Factor: $I_p := 1.5$

Component Amplification Factor: $a_p := 1.0$ (T13.6-1)

Response Modification Factor: $R_p := 1.5$ (T13.6-1)

Overstrength Factor: $\Omega := 2.0$ (T13.6-1)

Building Height: $H := 146\ ft$

Height of Attachment: $z := 32 \cdot ft$ Anchor to LV3

Calculated Horizontal Force Coefficient: $f_p := \dfrac{0.4 \cdot a_p \cdot S_{DS}}{\left(\dfrac{R_p}{I_p}\right)} \cdot \left(1 + 2 \cdot \dfrac{z}{H}\right) = 0.583$ (13.3-1)

Maximum Horizontal Force Coefficient: $f_{pmax} := 1.6 \cdot S_{DS} \cdot I_p = 2.43$ (13.3-2)

Minimum Horizontal Force Coefficient: $f_{pmin} := 0.3 \cdot S_{DS} \cdot I_p = 0.46$ (13.3-3)

Governing Horizontal Force Coefficient: $f_p := min\left(f_{pmax}, \max\left(f_p, f_{pmin}\right)\right) = 0.58$

Vertical Force Coefficient: $f_{pv} := 0.2 \cdot S_{DS} = 0.203$

Total Weight: $W_p := 4909\ lbf$ include 440lb patient weight

Design Force (Horizontal): $F_p := f_p \cdot W_p \cdot \Omega = 5722\ lbf$

Design Force (Vertical): $F_{pv} := f_{pv} \cdot W_p = 995\ lbf$

Omega for anchor to concrete

$$T_u(+) = \left(\frac{297544\text{"\#}(21.06")}{2856\ in^4} \times 0.3\right) + \frac{297544\text{"\#}(9.36")}{1164\ in^4} + \frac{220854\text{"\#}(9.36")}{1164\ in^4} + \frac{202316\text{"\#}(21.06")}{2856\ in^4} - \frac{4909\#(1.2) + 995\#}{9\ \text{BOLTS}} = 3$$

$$T_u(-) = \left(\frac{297544\text{"\#}(21.06")}{2856\ in^4} \times 0.3\right) + \frac{297544\text{"\#}(18.39")}{1164\ in^4} - \frac{116568\text{"\#}(18.39")}{1164\ in^4} + \frac{106783\text{"\#}(21.06")}{2856\ in^4} - \frac{4909\#(0.9) - 995\#}{9\ \text{BOLTS}} =$$

$$T_{Up} := \frac{297544 \cdot 21.06}{2856} \cdot 0.3 + \frac{297544 \cdot 9.36}{1164} + \frac{220854 \cdot 9.36}{1164} + \frac{202316 \cdot 21.06}{2856} - \frac{4909 \cdot 1.2 + 995}{9} = 5.554 \cdot 10^3$$

$T_{Up} = 5.554 \cdot 10^3$ lb/ Bolt

$V := \frac{5722}{9} + \frac{212622 \cdot 27.96}{4020} = 2.115 \cdot 10^3$ lb/ Bolt

The new equipment is the same as the existing equipment (Artis zee Floor mounted mult-purpose system)

We will reuse the existing mounting plate if all anchor is installed. G.C. to verify anchor bolt are in good condition

If not, use 5/8" thought bolt.

2. Polydoros A100 Generator Cabinet and System Control Cabinet

Design Forces

Component Importance Factor: $I_p := 1.5$

Component Amplification Factor: $a_p := 1.0$ (T13.6-1)

Response Modification Factor: $R_p := 1.5$ (T13.6-1)

Overstrength Factor: $\Omega := 2.0$ (T13.6-1)

Building Height: $H := 146\ ft$

Height of Attachment: $z := 30 \cdot ft$ Anchor to Third Floor

Calculated Horizontal Force Coefficient: $f_p := \frac{0.4 \cdot a_p \cdot S_{DS}}{\left(\frac{R_p}{I_p}\right)} \cdot \left(1 + 2 \cdot \frac{z}{H}\right) = 0.572$ (13.3-1)

Maximum Horizontal Force Coefficient: $f_{pmax} := 1.6 \cdot S_{DS} \cdot I_p = 2.43$ (13.3-2)

Minimum Horizontal Force Coefficient: $f_{pmin} := 0.3 \cdot S_{DS} \cdot I_p = 0.46$ (13.3-3)

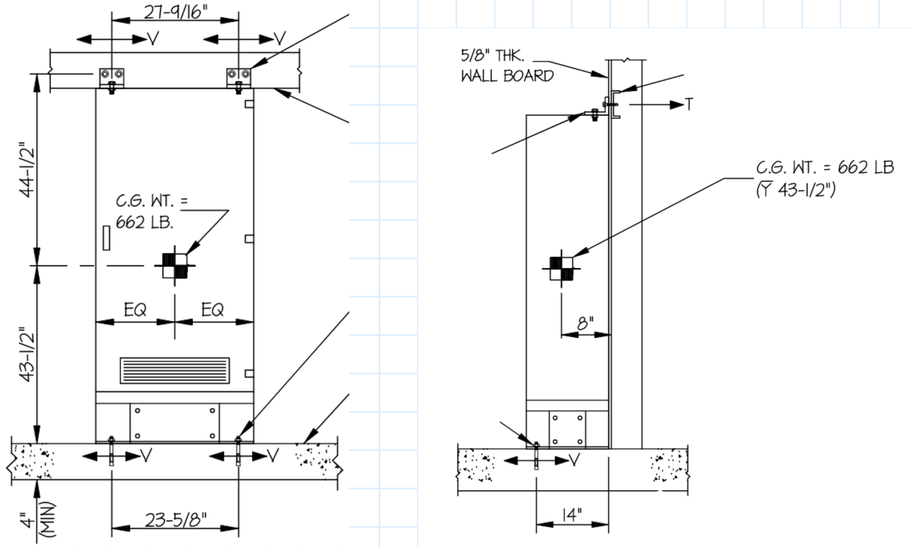
Governing Horizontal Force Coefficient: $f_p := min\left(f_{pmax}, \max\left(f_p, f_{pmin}\right)\right) = 0.57$

Vertical Force Coefficient: $f_{pv} := 0.2 \cdot S_{DS} = 0.203$

Total Weight: $W_p := 662\ lbf$ A100 Heavier, control

Design Force (Horizontal): $F_p := f_p \cdot W_p = 378\ lbf$

Design Force (Vertical): $F_{pv} := f_{pv} \cdot W_p = 134\ lbf$



Anchor Bolt Tension

Vertical Distance to C.G.: $Z_{cm} := 43.5 \cdot in$

Top Anchor point: $H1 := 43.5\ in + 44.5\ in = 88\ in$

C.O.G to wall: $X1 := 14\ in$

Sum moment at thee lower left corner:

Total Tension @ Top (1D+1E): $T := \dfrac{(\Omega \cdot F_p \cdot Z_{cm}) + (F_{pv}) \cdot X1}{H1} = 396\ lbf$

Anchor Resisting: $n := 2$

Tension/anchor: $T_b := \dfrac{T}{n} = 198\ lbf$

(4) #12 Screws to
Cfs backing ok, 43 mils Min.

Anchor Bolt Shear

Shear/Bolt(assume resist by floor support 100%): $S_b := \dfrac{\Omega \cdot F_p}{2} = 378\ lbf$

See Hilti Analysis: Use (2) 3/8"Ø Concrete Screw with 3" Embed, one at each side of the generator cabinet ok

Thickness (Mils)
18
27
30
33
43
54
68
97
118
54
68
97
118

3. EATON 9355 15KVA UPS AND BATTERY AND TRANSFORMER CABINET

By inspection, the UPS with Battery and Transforner Cabinet are very similar

Design Forces

Component Importance Factor: $I_p := 1.5$

Component Amplification Factor: $a_p := 1.0$ (T13.6-1)

Response Modification Factor: $R_p := 1.5$ (T13.6-1)

Overstrength Factor: $\Omega := 2.0$ (T13.6-1)

Building Height: $H := 146\ ft$

Height of Attachment: $z := 30 \cdot ft$ Anchor to Third Floor

Calculated Horizontal Force Coefficient: $f_p := \frac{0.4 \cdot a_p \cdot S_{DS}}{\left(\frac{R_p}{I_p}\right)} \cdot \left(1 + 2 \cdot \frac{z}{H}\right) = 0.572$ (13.3-1)

Maximum Horizontal Force Coefficient: $f_{pmax} := 1.6 \cdot S_{DS} \cdot I_p = 2.43$ (13.3-2)

Minimum Horizontal Force Coefficient: $f_{pmin} := 0.3 \cdot S_{DS} \cdot I_p = 0.46$ (13.3-3)

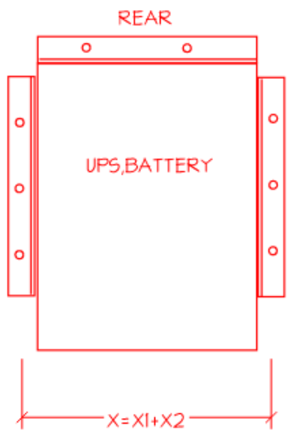
Governing Horizontal Force Coefficient: $f_p := min\left(f_{pmax}, \max\left(f_p, f_{pmin}\right)\right) = 0.57$

Vertical Force Coefficient: $f_{pv} := 0.2 \cdot S_{DS} = 0.203$

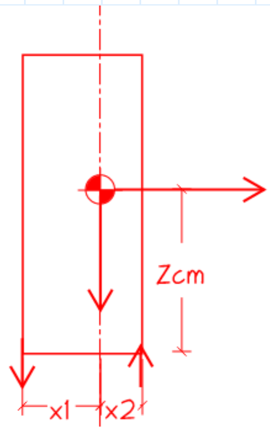
Total Weight: $W_p := 755\ lbf$ UPS And Battery are Heavier, control

Design Force (Horizontal): $F_p := f_p \cdot W_p = 432\ lbf$

Design Force (Vertical): $F_{pv} := f_{pv} \cdot W_p = 153\ lbf$



Plan



Elevation

Anchor Bolt Tension

Vertical Distance to C.G.: $Z_{cm} := 33 \cdot in$

When overturning in sideways

X1: $X1 := 6.75 \cdot in$

X2: $X2 := (12.75 - 6.75) \cdot in$

Sum moment at thee lower left corner:

Total Tension (0.9DL - E): $T := \dfrac{(\Omega \cdot F_p \cdot Z_{cm}) - (0.9 \cdot W_p - F_{pv}) \cdot X1}{X1 + X2} = 1956\ lbf$

Bolts Resisting Overturning: $n := 3$

Tension/Bolt(Uplift): $T_b := \dfrac{T}{n} = 652\ lbf$

Anchor Bolt Shear

Shear/Bolt: $S_b := \dfrac{\Omega \cdot F_p}{2\ n} = 144\ lbf$

See Hilti Analysis: Use (3) 1/2"Ø Concrete screws with 3 " Embed ok

When overturning in front and back

X1: $Y1 := 15.5 \cdot in$

X2: $Y2 := (33.5 - 15.5) \cdot in$

Sum moment at thee lower left corner:

Total Tension (0.9DL - E): $T := \dfrac{(\Omega \cdot F_p \cdot Z_{cm}) - (0.9 \cdot W_p - F_{pv}) \cdot Y1}{Y1 + Y2} = 607\ lbf$

Bolts Resisting Overturning: $n := 2$

Tension/Bolt(Uplift): $T_b := \dfrac{T}{n} = 303\ lbf$

Anchor Bolt Shear

Shear/Bolt: $S_b := \dfrac{\Omega \cdot F_p}{2\ n} = 216\ lbf$

See Hilti Analysis: Use (2) 1/2"Ø Concrete Screw with 3 " Embed ok

4. DCS LARGE DISPLAY+UPPER BODY RADIATION SHIELD 4M TRACK

Design Forces

Component Importance Factor: $I_p := 1.5$

Component Amplification Factor: $a_p := 2.5$

Response Modification Factor: $R_p := 2.5$

Overstrength Factor: $\Omega := 2.0$

Building Height: $H := 146\ ft$

Height of Attachment: $z := 40 \cdot ft$ Anchor to Ceiling

Calculated Horizontal Force Coefficient: $$f_p := \frac{0.4 \cdot a_p \cdot S_{DS}}{\left(\frac{R_p}{I_p}\right)} \cdot \left(1 + 2 \cdot \frac{z}{H}\right) = 0.941$$

Maximum Horizontal Force Coefficient: $f_{pmax} := 1.6 \cdot S_{DS} \cdot I_p = 2.43$

Minimum Horizontal Force Coefficient: $f_{pmin} := 0.3 \cdot S_{DS} \cdot I_p = 0.46$

Governing Horizontal Force Coefficient: $f_p := min\left(f_{pmax}, \max\left(f_p, f_{pmin}\right)\right) = 0.94$

Vertical Force Coefficient: $f_{pv} := 0.2 \cdot S_{DS} = 0.203$

Total Weight: $W_p := (415 + 119 + 231)\ lbf = 765\ lbf$

Including two monitor, railing and shield and lamp

Design Force (Horizontal): $F_p := f_p \cdot W_p = 720\ lbf$

Design Force (Vertical): $F_{pv} := f_{pv} \cdot W_p = 155\ lbf$

By infomation provided from Sellen, the contractor, the veritical hanger is construct with 1/2" threaded rod, spaced @ 4'-0" O.C. max

The unistruct above the ceiling are P1001

$P := 765\ lbf \cdot 1.0 \quad L := 48\ in$ ASD

$$M := \frac{P \cdot L}{4} = \left(9.18 \cdot 10^3\right)\ in \cdot lbf$$

Less than the allowable moment provide in Unistrut Catalog

Channels & Combinations in Descending Order of Strength

Channel	Area In² (cm²)	Weight lbs/ft (kg/m)	I In⁴ (cm⁴)	s In³(cm³)	Allow. Moment In-lbs (N•m)
P5001	1.793 *11.57*	6.10 *9.1*	6.227 *259.2*	1.916 *31.4*	48,180 *5,440*
P1004A	1.965 *12.68*	6.68 *9.9*	4.068 *169.3*	1.669 *27.4*	41,980 *4,740*
P5501	1.452 *9.37*	4.94 *7.3*	2.805 *116.8*	1.151 *18.9*	28,940 *3,270*
P1001C41	2.221 *14.33*	7.55 *11.2*	1.856 *77.2*	1.142 *18.7*	28,720 *3,250*
P5000	0.897 *5.78*	3.05 *4.5*	1.098 *45.7*	0.627 *10.3*	15,770 *1,780*
P1001	1.111 *7.16*	3.78 *5.6*	0.928 *38.6*	0.571 *9.4*	14,360 *1,620*
P1101	0.835 *5.39*	2.84 *4.2*	0.733 *30.5*	0.451 *7.4*	11,340 *1,280*
	1.000	3.40	0.591	0.430	10,810

compare it with the beam loading table

P1001 - Beam Loading

Span In	Max. Allowable Uniform Load Lbs	Defl. at Uniform Load In	Uniform Loading at Deflection Span/180 Lbs	Span/240 Lbs	Span/360 Lbs
24	3,500*	0.02	3,500*	3,500*	3,500*
36	3,190	0.07	3,190	3,190	3,190
48	2,390	0.13	2,390	2,390	2,390
60	1,910	0.20	1,910	1,910	1,620
72	1,600	0.28	1,600	1,600	1,130
84	1,370	0.39	1,370	1,240	830
96	1,200	0.51	1,200	950	630
108	1,060	0.64	1,000	750	500
120	960	0.79	810	610	410
144	800	1.14	560	420	280
168	680	1.53	410	310	210
192	600	2.02	320	240	160
216	530	2.54	250	190	130
240	480	3.16	200	150	100

$2390\ lbf \cdot 0.62 = (1.482 \cdot 10^3)\ lbf$

The demand, 765 lbf are much less than the allowable point load

$0.13\ in \cdot 0.71 = 0.092\ in$

$\frac{48\ in}{0.092\ in} = 521.739$

Deflection acceptable

Recall lateral force

$F_p = 719.743\ lbf$

$\alpha := 60\ deg$

α is between 40-60deg by inspection, 60deg will result the max horizontal force, while 40 will result max length. use the max of both for conservative

$F_{Brace} := \frac{F_p}{2 \cdot \cos(\alpha)} = 719.743\ lbf$

two braces at each side

DETAIL 5A.2-1: TYPICAL FITTING CONNECTION TO STRUT WITH WOLF WASHER

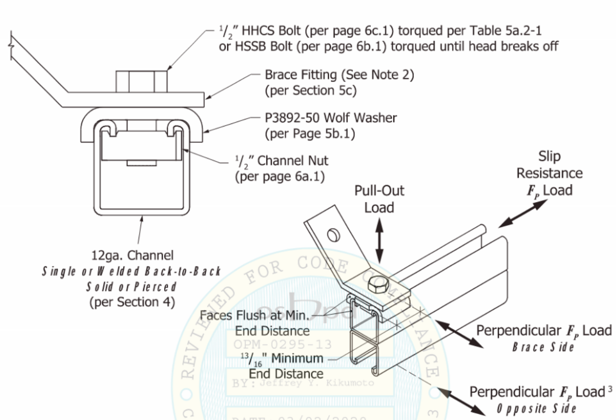


Table 5a.2-1

Bolt Size	Installation Torque (ft-lbs)	Max. Capacity (lbs) [ASD]	Maximum Horizontal F_p Force (lbs) [ASD]		
		Pull-Out	Slip Resistance	Perpendicular Brace Side	Perpendicular [3] Opposite Brace
½"	60 - 65	2,605	2,375	935	640

Brace fiting acceptbale

Story height=15ft

Ceiling to slab above= 4ft

$\alpha := 40\ deg$

$L_{brace} := \frac{4\ ft}{\sin(\alpha)} = 74.675\ in$

P1000 - Column Loading

Unbraced Height In	Max. Allowable Load at Slot Face Lbs	Maximum Column Load Applied at C.G. K = 0.65 Lbs	K = 0.80 Lbs	K =1.0 Lbs	K = 1.2 Lbs
24	3,550	10,740	9,890	8,770	7,740
36	3,190	8,910	7,740	6,390	5,310
48	2,770	7,260	6,010	4,690	3,800
60	2,380	5,910	4,690	3,630	2,960
72	2,080	4,840	3,800	2,960	2,400
84	1,860	4,040	3,200	2,480	1,980
96	1,670	3,480	2,750	2,110	1,660
108	1,510	3,050	2,400	1,810	**
120	1,380	2,700	2,110	**	**
144	1,150	2,180	1,660	**	**

P1000 Brace OK.

www.hilti.com

Company:		Page:	1
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Nov 27, 2024	Date:	12/14/2024
Fastening point:			

Specifier's comments:

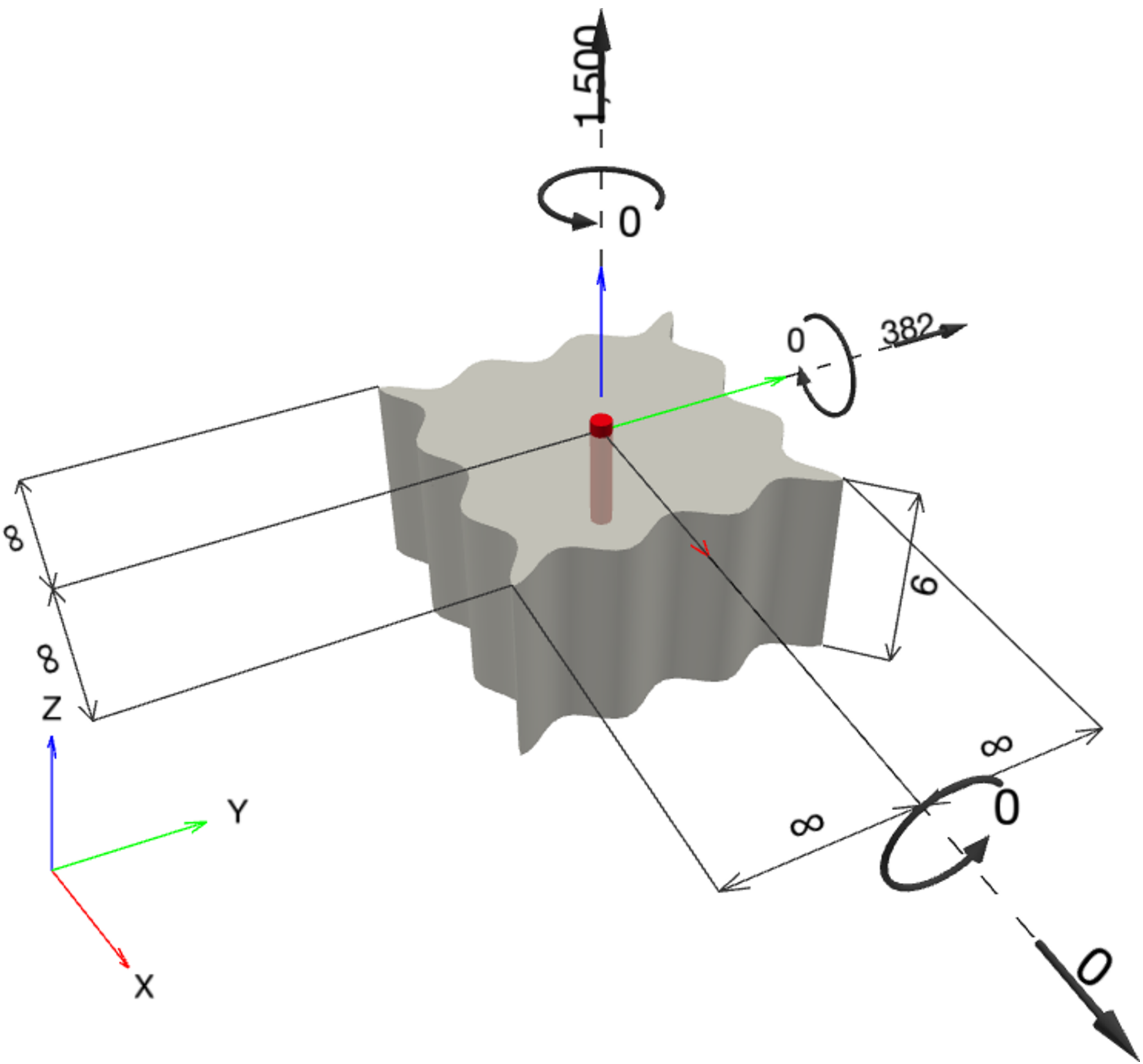
1 Input data

Anchor type and diameter:	**KWIK HUS-EZ (KH-EZ) (Carbon Steel) 5/8 (4)**
Item number:	418080 KH-EZ 5/8"x5 1/2"
Specification text:	Hilti ∅ 5/8 in KWIK HUS-EZ (KH-EZ) (Carbon Steel) with 4 in nominal embedment depth per ICC-ES ESR-3027 , Hammer drilled installation per MPII
Effective embedment depth:	$h_{ef,act}$ = 3.030 in., h_{nom} = 4.000 in.
Material:	Carbon Steel
Evaluation Service Report:	ESR-3027
Issued I Valid:	12/1/2023 | 12/1/2025
Proof:	Design Method ACI 318-19 / Mech
Shear edge breakout verification:	Row closest to edge (Case 3 only from ACI 318-19 Fig. R.17.7.2.1b)
Stand-off installation:	
Profile:	
Base material:	cracked concrete, 2500, f_c' = 2,500 psi; h = 6.000 in.
Installation:	**Hammer drilled hole, Installation condition: Dry**
Reinforcement:	tension: not present, shear: not present; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar

Periodic Special Inspection required per ICC-ES ESR-3027

Company:		Page:	2
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Nov 27, 2024	Date:	12/14/2024
Fastening point:			

Geometry [in.] & Loading [lb, in.lb]



Company:		Page:	3
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Nov 27, 2024	Date:	12/14/2024
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 1,500; V_x = 0; V_y = 382; M_x = 0; M_y = 0; M_z = 0;	no	52

Company:		Page:	4
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Nov 27, 2024	Date:	12/14/2024
Fastening point:			

2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization	
Loading	**Proof**	**Load**	**Capacity**	**β_N / β_V [%]**	**Status**
Tension	Concrete Breakout Failure	1,500	2,914	52 / -	OK
Shear	Pryout Strength	382	6,276	- / 7	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.515	0.061	5/3	35	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

4 Remarks; Your Cooperation Duties

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Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	TSIO XPREE WALL STAND	Date:	12/14/2024
Fastening point:			

Specifier's comments:

1 Input data

Anchor type and diameter:	**KWIK HUS-EZ (KH-EZ) (Carbon Steel) 5/8 (4)**
Item number:	418080 KH-EZ 5/8"x5 1/2"
Specification text:	Hilti ∅ 5/8 in KWIK HUS-EZ (KH-EZ) (Carbon Steel) with 4 in nominal embedment depth per ICC-ES ESR-3027 , Hammer drilled installation per MPII
Effective embedment depth:	$h_{ef,act}$ = 3.030 in., h_{nom} = 4.000 in.
Material:	Carbon Steel
Evaluation Service Report:	ESR-3027
Issued I Valid:	12/1/2023 | 12/1/2025
Proof:	Design Method ACI 318-19 / Mech
Shear edge breakout verification:	Row closest to edge (Case 3 only from ACI 318-19 Fig. R.17.7.2.1b)
Stand-off installation:	
Profile:	
Base material:	cracked concrete, 2500, f_c' = 2,500 psi; h = 6.000 in.
Installation:	**Hammer drilled hole, Installation condition: Dry**
Reinforcement:	tension: not present, shear: not present; no supplemental splitting reinforcement present
	edge reinforcement: none or < No. 4 bar

Periodic Special Inspection required per ICC-ES ESR-3027

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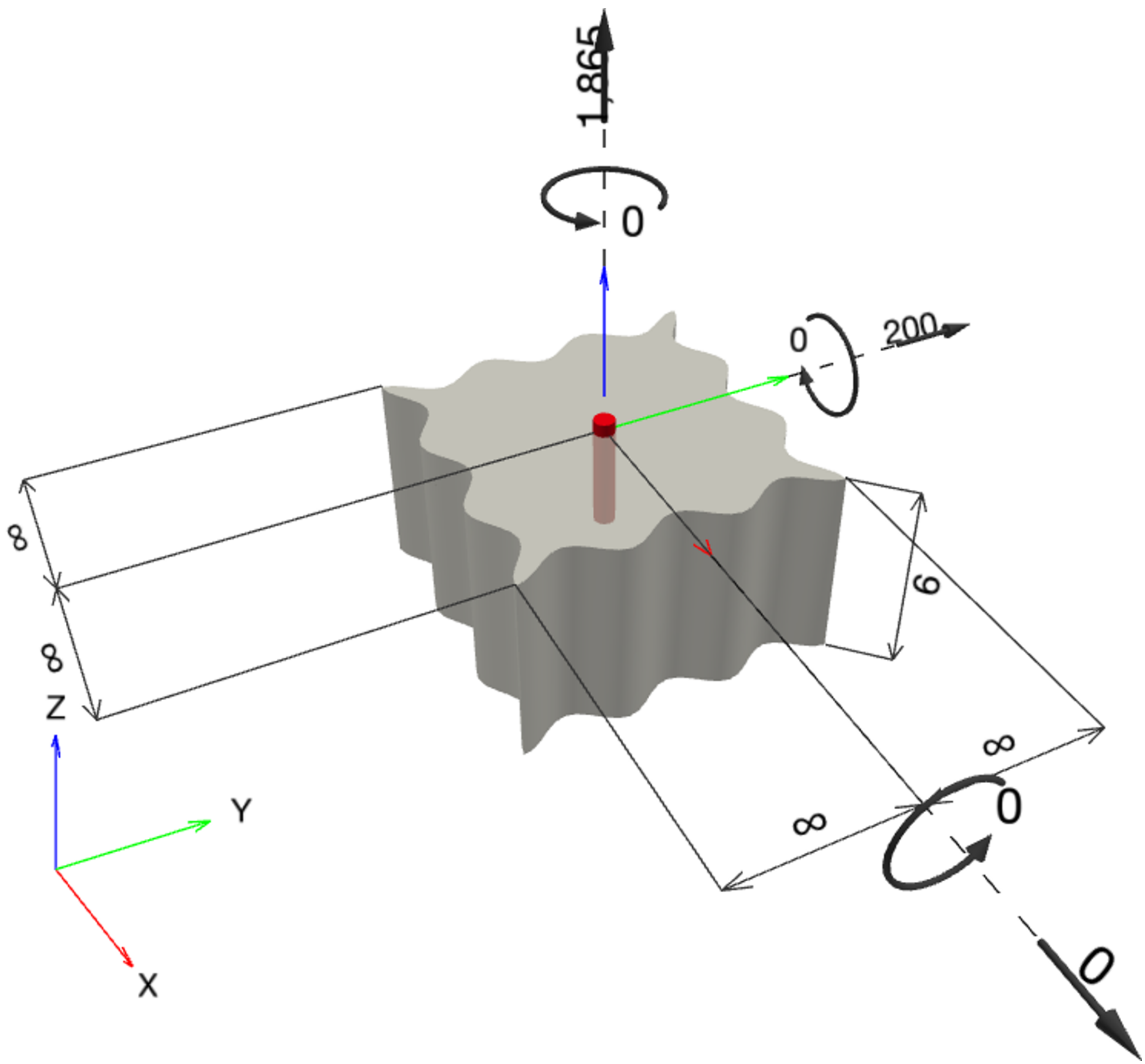
Geometry [in.] & Loading [lb, in.lb]



1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	$N = 1,865$; $V_x = 0$; $V_y = 200$; $M_x = 0$; $M_y = 0$; $M_z = 0$;	no	65

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2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization	
Loading	**Proof**	**Load**	**Capacity**	**β_N / β_V [%]**	**Status**
Tension	Concrete Breakout Failure	1,865	2,914	65 / -	OK
Shear	Pryout Strength	200	6,276	- / 4	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.640	0.032	5/3	48	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

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