

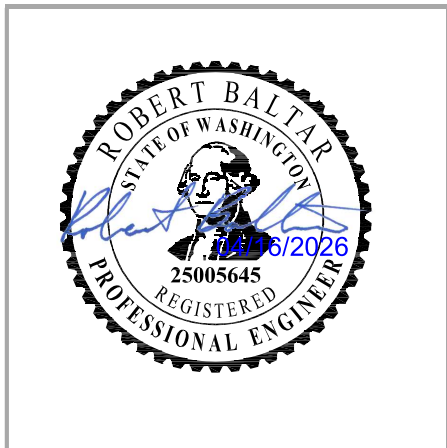
INFINIGY

STRUCTURAL DESIGN REPORT

April 14, 2026

T-Mobile Site Name	Washington State Fair / Light Pole
T-Mobile Site ID	SE04823C
Infinigy Job Number	4114-C0041-C
Carrier	T-Mobile
Site Location	902 S Meridian Puyallup, WA 98371 Pierce County 47° 10' 53.2" N NAD83 122° 17' 47.5" W NAD83
Structure Type	Generator Pad & Anchorage
Structural Usage Ratio	51.3%
Overall Result	Pass

The enclosed structural design has been performed in accordance with the 2021 Washington State Building Code (2021 International Building Code) based on an ultimate 3-second gust wind speed of 97 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



structural@infinigy.com

Robert Baltar, PE
2026.04.16 15:20:16-04'00'

This item has been electronically signed and sealed by Robert Baltar, PE on the date affixed using a Digital Signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

PRCTI20260634

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

City of Puyallup
Building
REVIEWED
FOR
COMPLIANCE

SKinnear
05/18/2026
3:34:54 PM



April 14, 2026

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1. Introduction
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Supporting Documentation
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April 14, 2026

1. INTRODUCTION

Infinigy performed structural calculations for the proposed diesel generator and concrete pad located at the aforementioned address. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site.

2. DESIGN/ANALYSIS PARAMETERS

Ultimate Wind Speed	97 mph (3-Second Gust)
Wind Speed w/ ice	30 mph (3-Second Gust) w/ 1.0" ice
Code / Standard	TIA-222-H
Adopted Code	2021 IBC / 2021 Washington State Building Code
Risk Category	II
Exposure Category	C
Topographic Category	1
Seismic Spectral Response	$S_s = 1.27 g$ / $S_1 = 0.438 g$
HMSL	41.3 ft

3. PROPOSED LOADING CONFIGURATION

Elevation (ft)	Qty.	Cabinet	Max Weight (lbs)
4.0	1	Generac 48 kW Diesel Generator w/ 240-gal Fuel Tank	4,619.0

4. SUPPORTING DOCUMENTATION

Preliminary Site Sketch	Infinigy, Site ID: SE04823C, dated April 1, 2026
Construction Drawings	Ryka Consulting, Site ID: SE04823C, Rev. 0, dated March 16, 2022

April 14, 2026

5. RESULTS

Components	Capacity	Pass/Fail
Generator Pad	51.3%	Pass
Generator Anchorage	19.1%	Pass
RATING =	51.3%	Pass

6. RECOMMENDATIONS

Infinigy recommends installing the proposed T-Mobile's equipment at the subject site. The installation shall be performed in accordance with the construction documents issued for this site.

If you have any questions, require additional information, or believe the actual conditions differ from those detailed in this report, please contact us immediately.

Robert Baltar, P.E.
Principal Engineer

7. ASSUMPTIONS

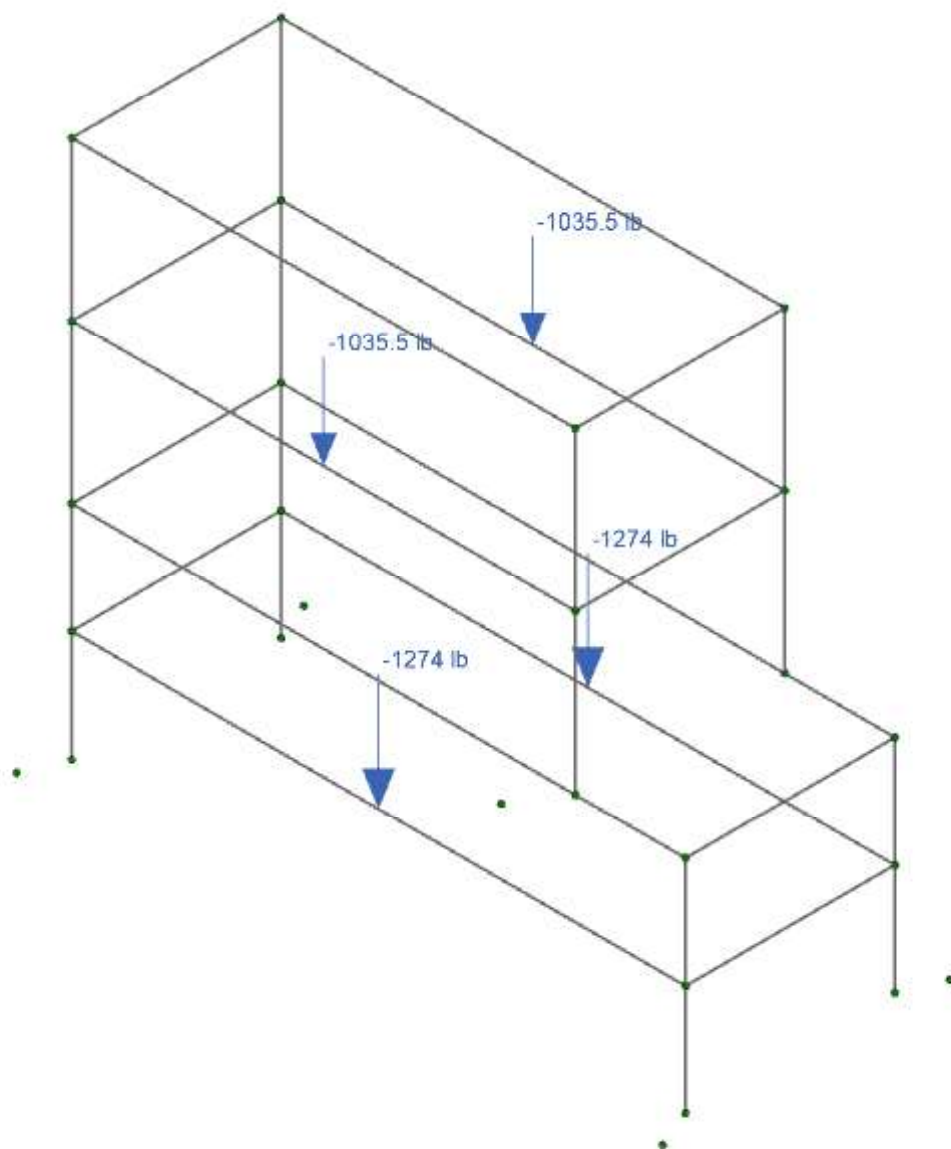
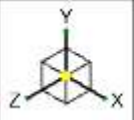
The appurtenance supporting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.	
The configuration of antennas, mounts, cabinets and other appurtenances are as specified in the proposed loading configuration table.	
All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.	
The design will require revisions if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this design. No allowance was made for any damaged, missing, or rusted members.	
Steel grades have been assumed as follows, unless noted otherwise:	
Channel, Solid Round, Angle, Plate	ASTM A36
HSS (Rectangular)	ASTM A500-B GR 46
HSS (Circular)	ASTM A500-B GR 42
Pipe	ASTM A53-B GR 35
Connection Bolts	ASTM A325
U-Bolts	ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard.	

8. LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the appurtenance supporting systems considered in this report only and does not determine the adequacy of the supporting structure, other carrier mounts or cable mounting attachments. The analysis of these elements is outside the scope of this analysis, are assumed to be adequate for the purpose of this report and to have been installed per their manufacturer requirements. This document is not for construction purposes.



Loads: BLC 1, Self Weight



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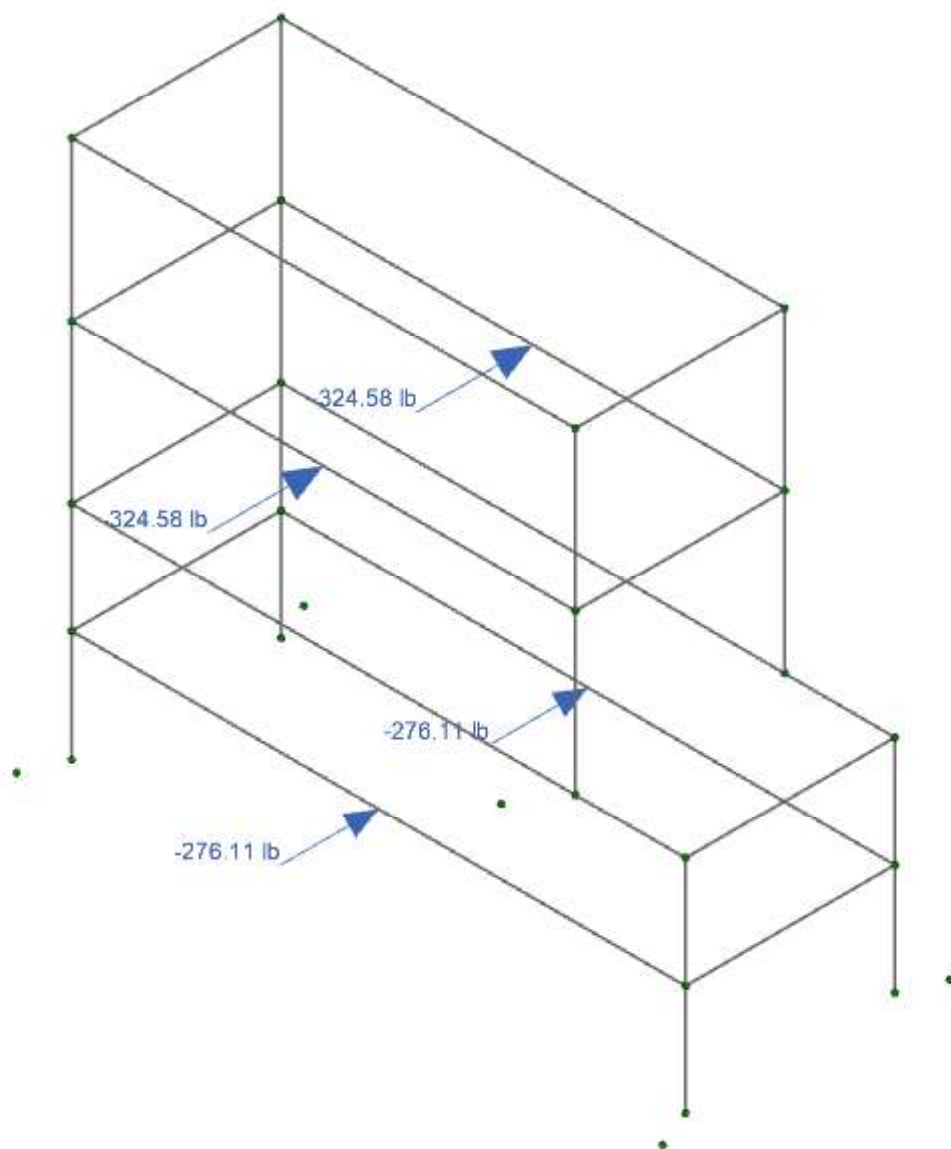
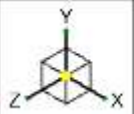
4114-C0041-C

SE04823C (Pad)

Self Weight

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SE04823C_PAD_loaded.r3d



Loads: BLC 2, Wind Load AZI 0



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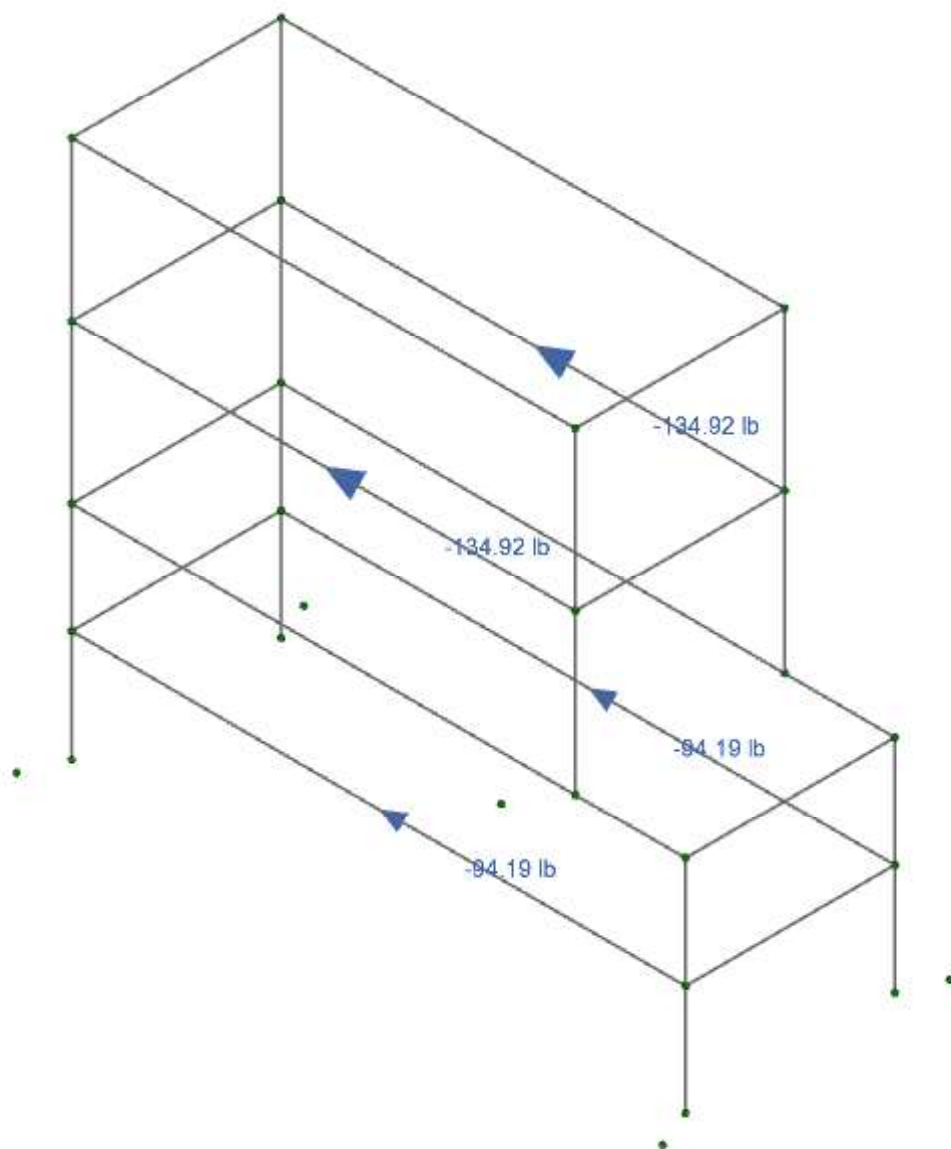
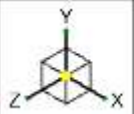
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SE04823C (Pad)

Wind Loading 0

Apr 10, 2026 at 01:04 AM

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Loads: BLC 5, Wind Load AZI 90



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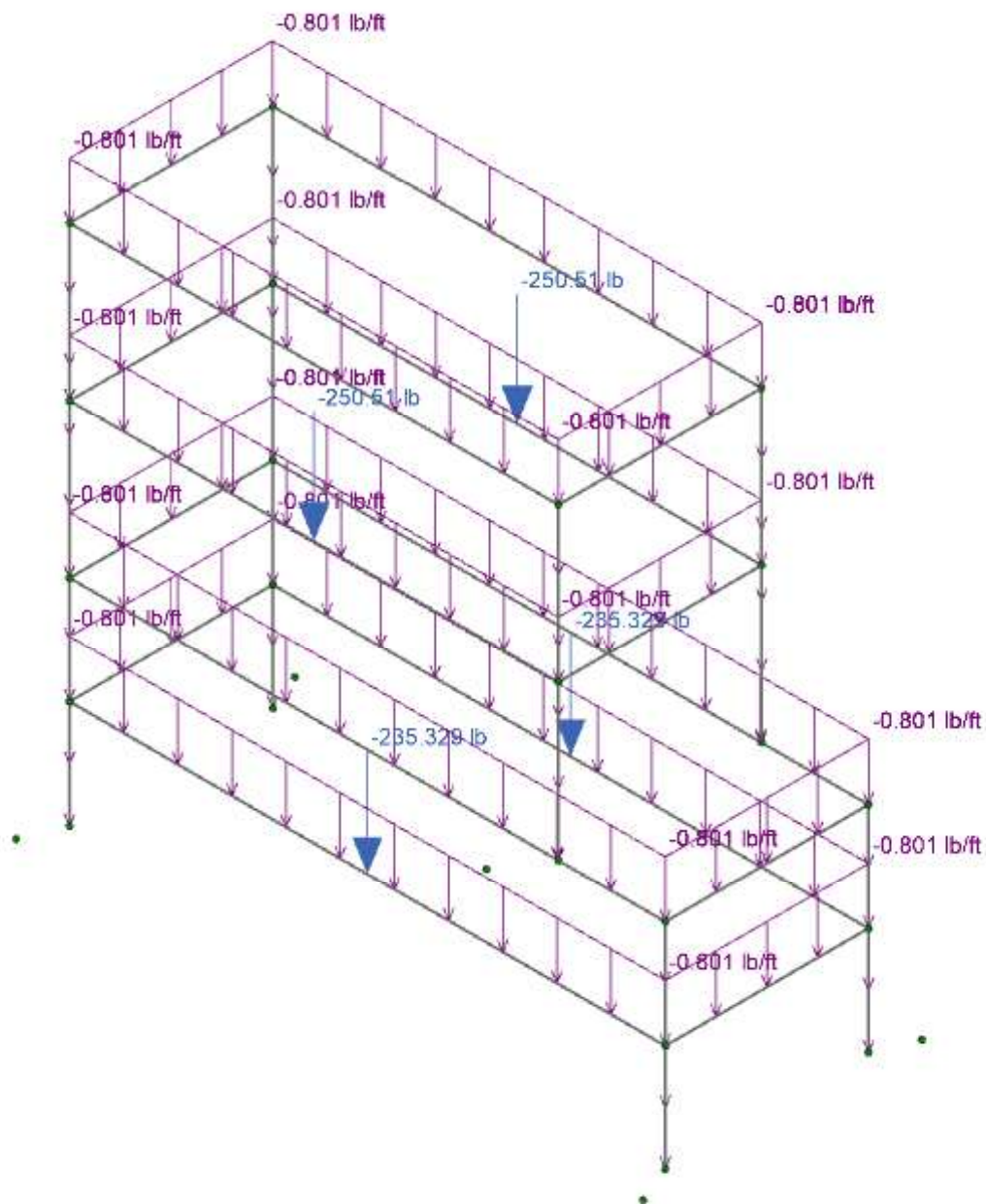
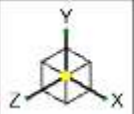
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SE04823C (Pad)

Wind Loading 90

Apr 10, 2026 at 01:04 AM

SE04823C_PAD_loaded.r3d



Loads: BLC 16, Ice Weight



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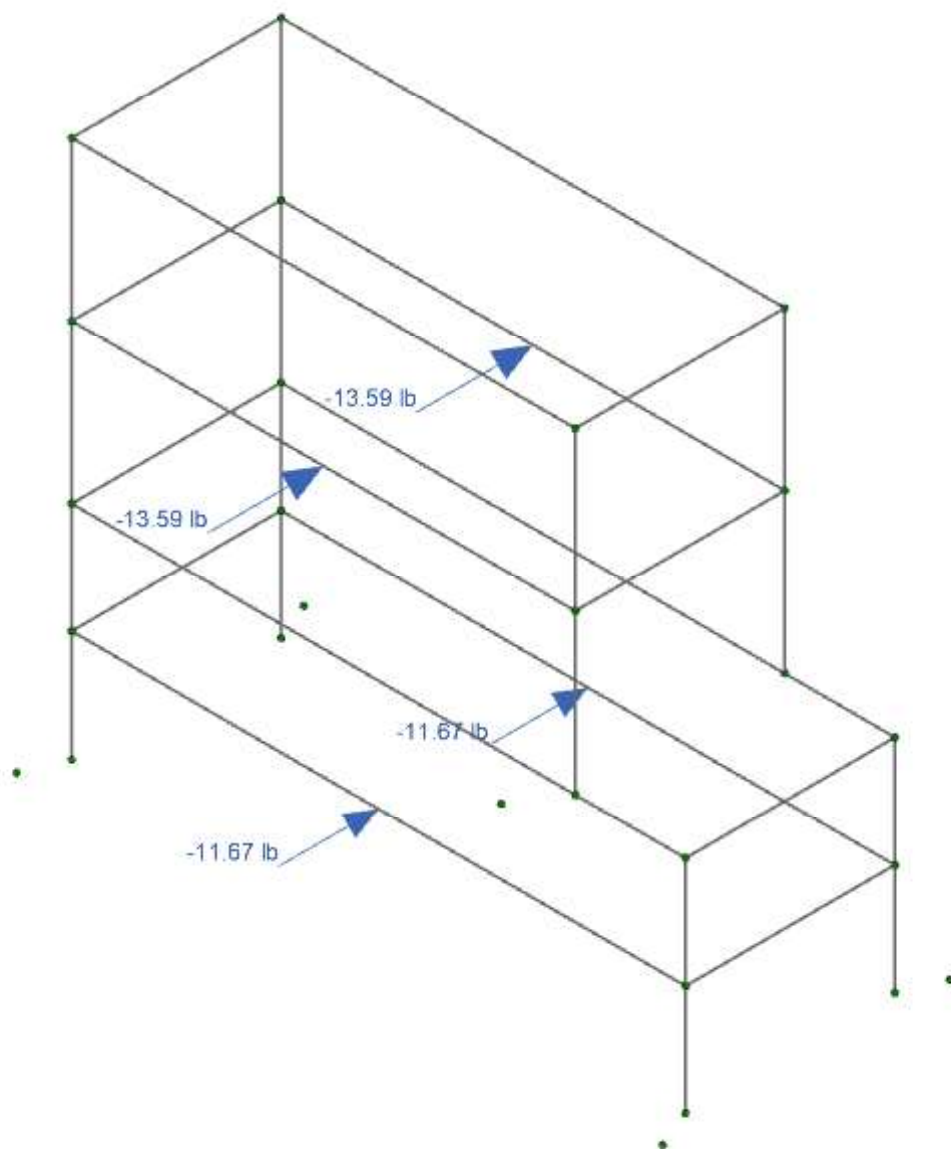
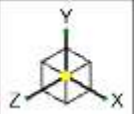
4114-C0041-C

SE04823C (Pad)

Ice Weight

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SE04823C_PAD_loaded.r3d



Loads: BLC 17, Ice Wind Load AZI 0



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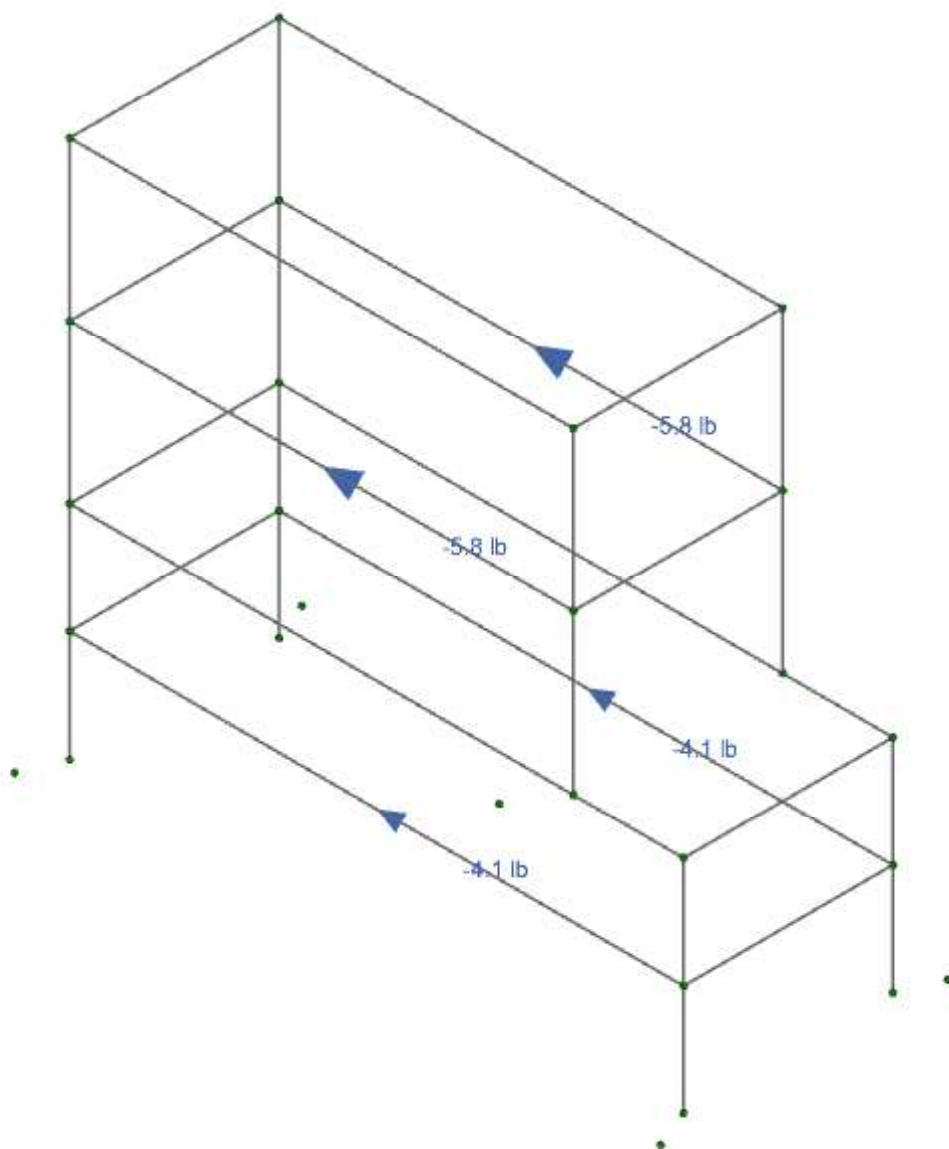
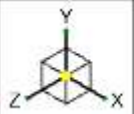
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SE04823C (Pad)

Ice Wind Loading 0

Apr 10, 2026 at 01:05 AM

SE04823C_PAD_loaded.r3d



Loads: BLC 20, Ice Wind Load AZI 90



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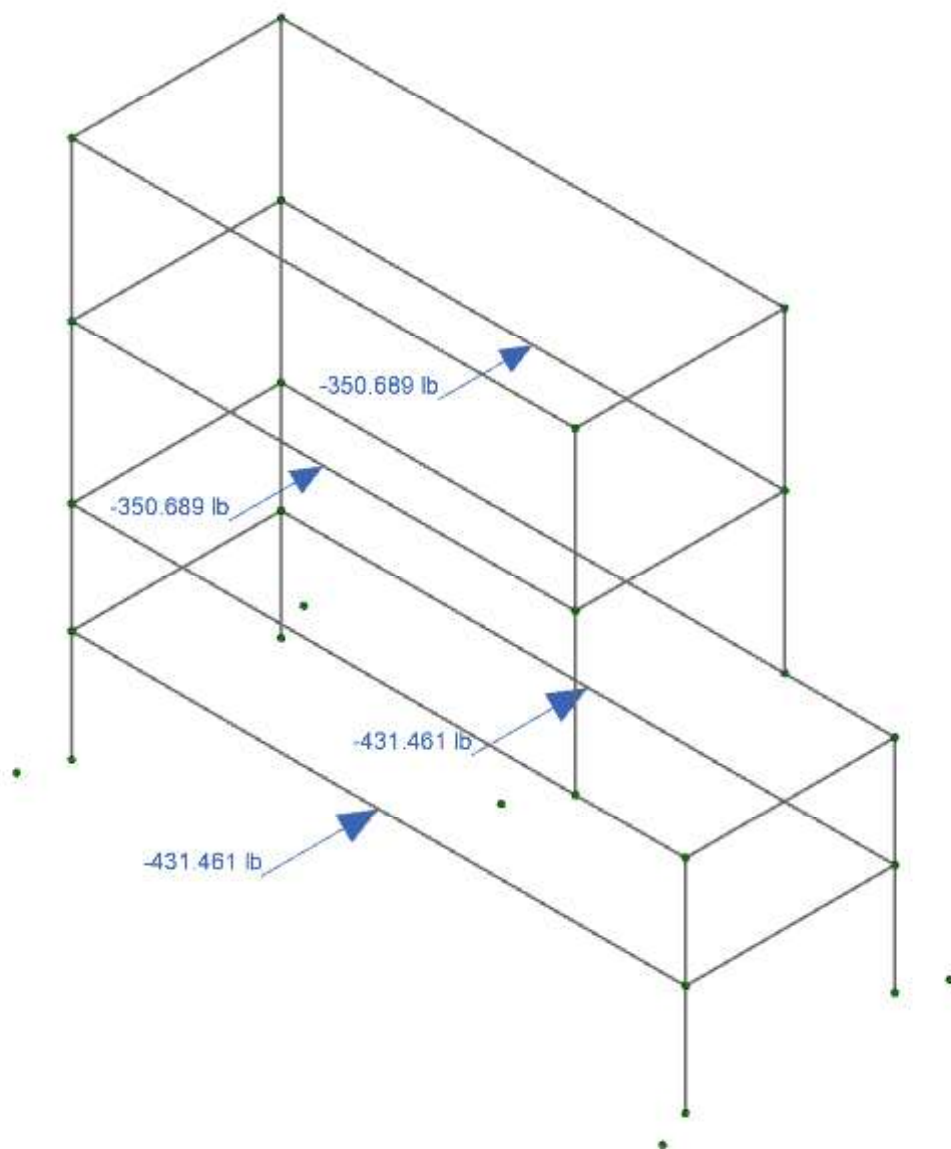
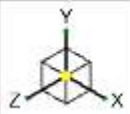
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SE04823C (Pad)

Ice Wind Loading 90

Apr 10, 2026 at 01:05 AM

SE04823C_PAD_loaded.r3d



Loads: BLC 31, Seismic Load Z



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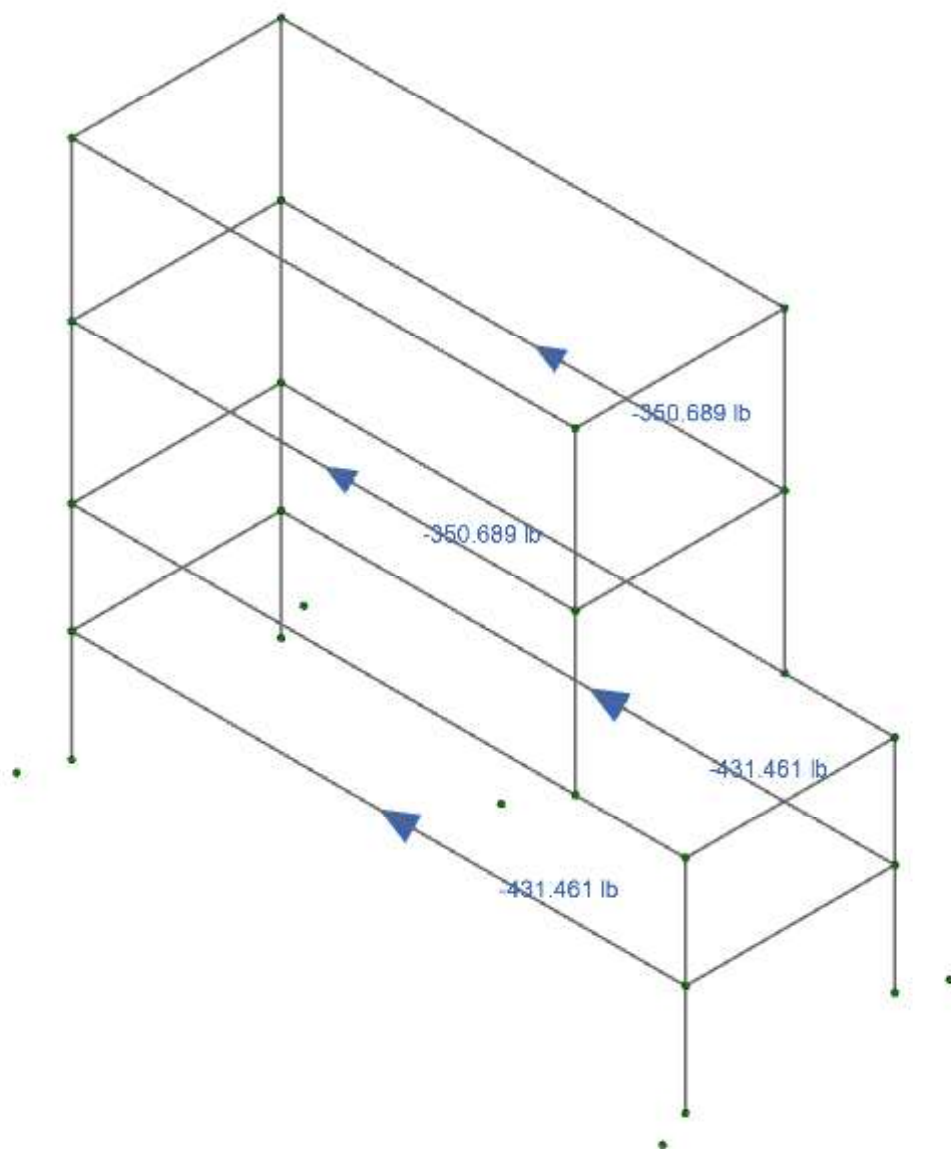
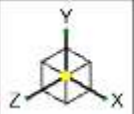
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SE04823C (Pad)

Seismic Loading 0

Apr 10, 2026 at 01:06 AM

SE04823C_PAD_loaded.r3d



Loads: BLC 32, Seismic Load X



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4114-C0041-C

SE04823C (Pad)

Seismic Loading 90

Apr 10, 2026 at 01:06 AM

SE04823C_PAD_loaded.r3d

Program Inputs

PROJECT INFORMATION		
Site Name:	Washington State Fair / Light Pole	
Carrier:	T-Mobile	
Engineer:	Robert Baltar, PE	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	Default	
Ground Elevation:	41.30	ft *Rev H/I

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	1	
Centerline AGL:	4.00	ft
Tower Height AGL:	8.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.999	*Rev H/I Only
Rooftop Speed-Up (K_s):	1.000	*Rev H/I Only
Topographic Factor (K_{zt}):	1.000	
Height Esc. Fact. (K_{iz}):	0.810	
Gust Effect Factor (G_h):	1.000	
Shielding Factor (K_s):	0.900	
Velocity Pressure Co. (K_z):	0.849	(Mount Elev)

CODE STANDARDS		
Building Code:	2021 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-16	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	97	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	30	mph
Base Ice Thickness (t_i):	1	in
Radial Ice Thickness (t_{ir}):	0.810	in
Flat Pressure:	38.791	psf
Round Pressure:	23.275	psf
Ice Wind Pressure:	2.226	psf

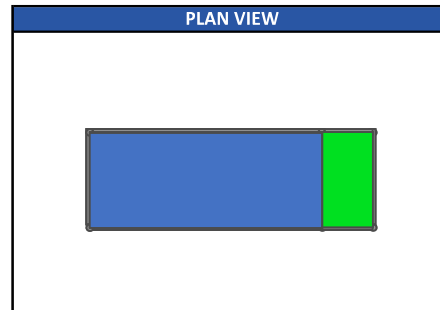
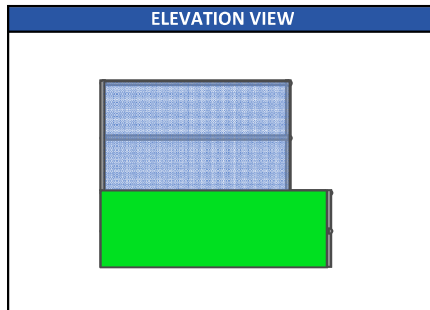
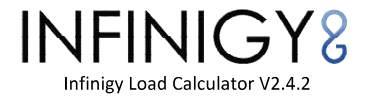
SEISMIC DATA		
Short-Period Accel. (S_s):	1.270	g
1-Second Accel. (S_1):	0.438	g
Short-Period Design (S_{DS}):	0.847	
1-Second Design (S_{D1}):	0.544	
Short-Period Coeff. (F_a):	1.000	
1-Second Coeff. (F_v):	1.862	
Amplification Factor (A_s):	1.000	
Response Mod. Coeff. (R):	2.500	
Seismic Importance (I_e):	1.000	
Seismic Response Co. (C_s):	0.339	
Total App. Weight:	4619.000	lb
Total Shear Force (V_s):	1564.301	lb
Hor. Seismic Load (E_h):	1564.301	lb
Vert. Seismic Load (E_v):	782.151	lb *

*For reference only. Per TIA Rev H/Rev I section 16.7, E_v is not applicable to mounts

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Infinigy Load Calculator V2.4.2

Program Inputs

[illegible]

ASCE Hazards Report

Address:

No Address at This Location

Standard: ASCE/SEI 7-16

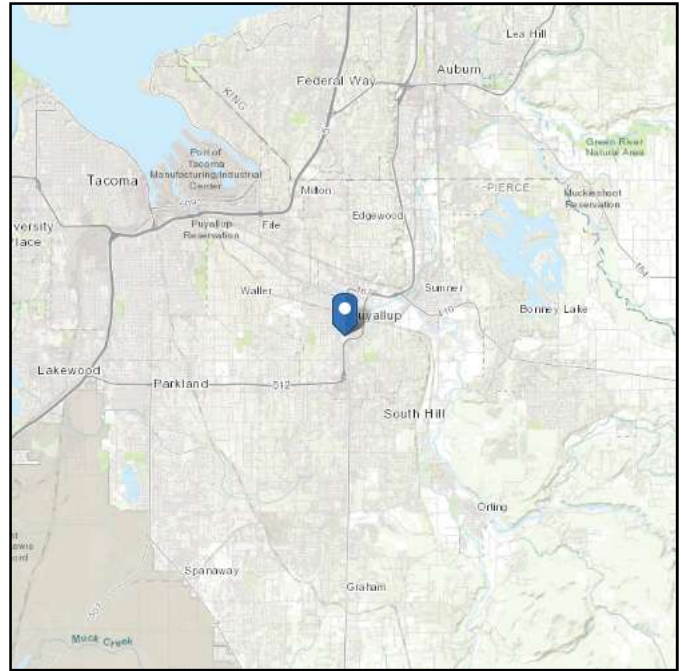
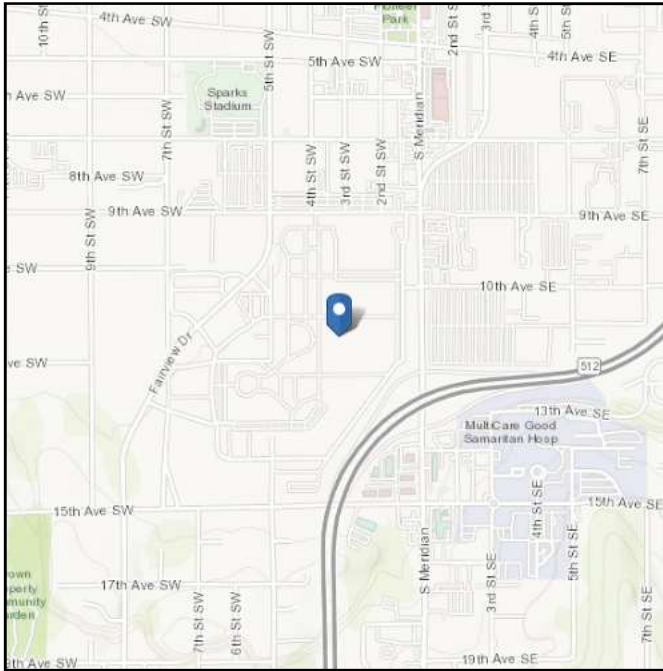
Risk Category: II

Soil Class: D - Default (see Section 11.4.3)

Latitude: 47.181444

Longitude: -122.296528

Elevation: 41.27113344337964 ft
(NAVD 88)



Wind

Results:

Wind Speed	97 Vmph
10-year MRI	67 Vmph
25-year MRI	73 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: Thu Apr 09 2026

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.

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

Results:

S_s :	1.27	S_{D1} :	N/A
S_1 :	0.438	T_L :	6
F_a :	1.2	PGA :	0.5
F_v :	N/A	PGA _M :	0.6
S_{MS} :	1.524	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.016	C_v :	1.354

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

Data Accessed: Thu Apr 09 2026

Date Source: [USGS Seismic Design Maps](#)

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 25 F
Gust Speed 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu Apr 09 2026

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Snow

Results:

Ground Snow Load, p_g : 18 lb/ft²
Mapped Elevation: 41.3 ft

Data Source:

Date Accessed: Thu Apr 09 2026

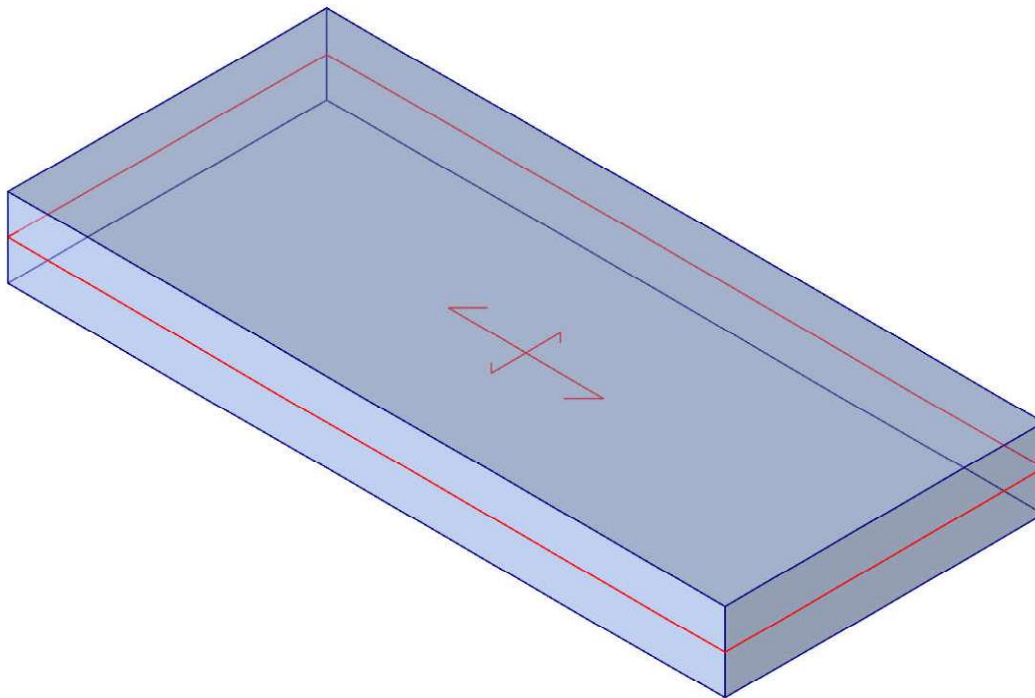
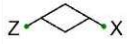
Statutory requirements of the Authority Having Jurisdiction are not included.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

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.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE Hazard Tool.



4'-0" X 9'-0" X 1'-0" PAD



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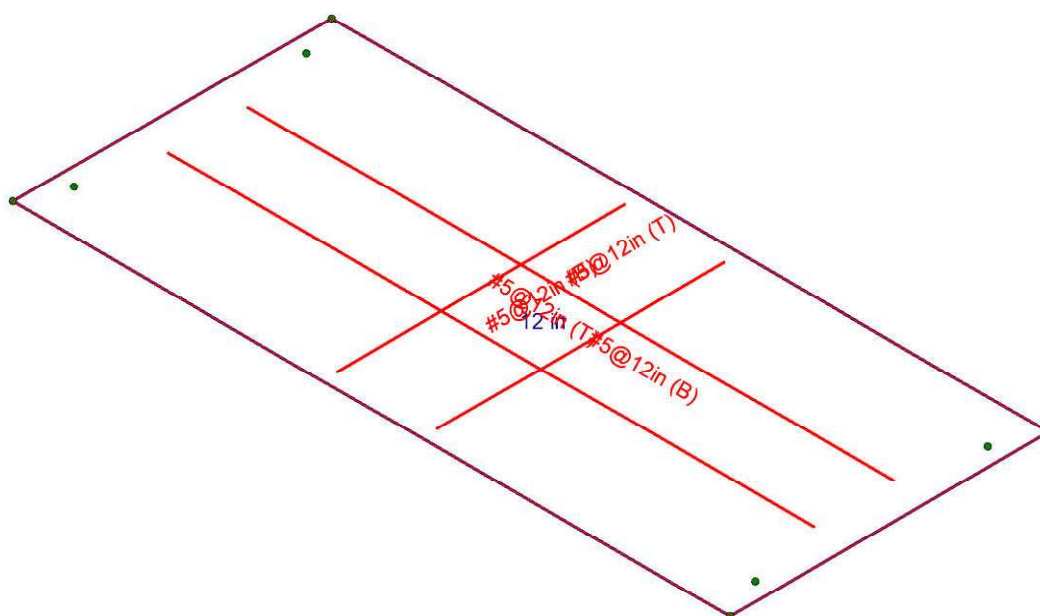
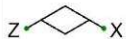
4114-C0041-C

SE04823C (Pad)

Render

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Enveloped Results



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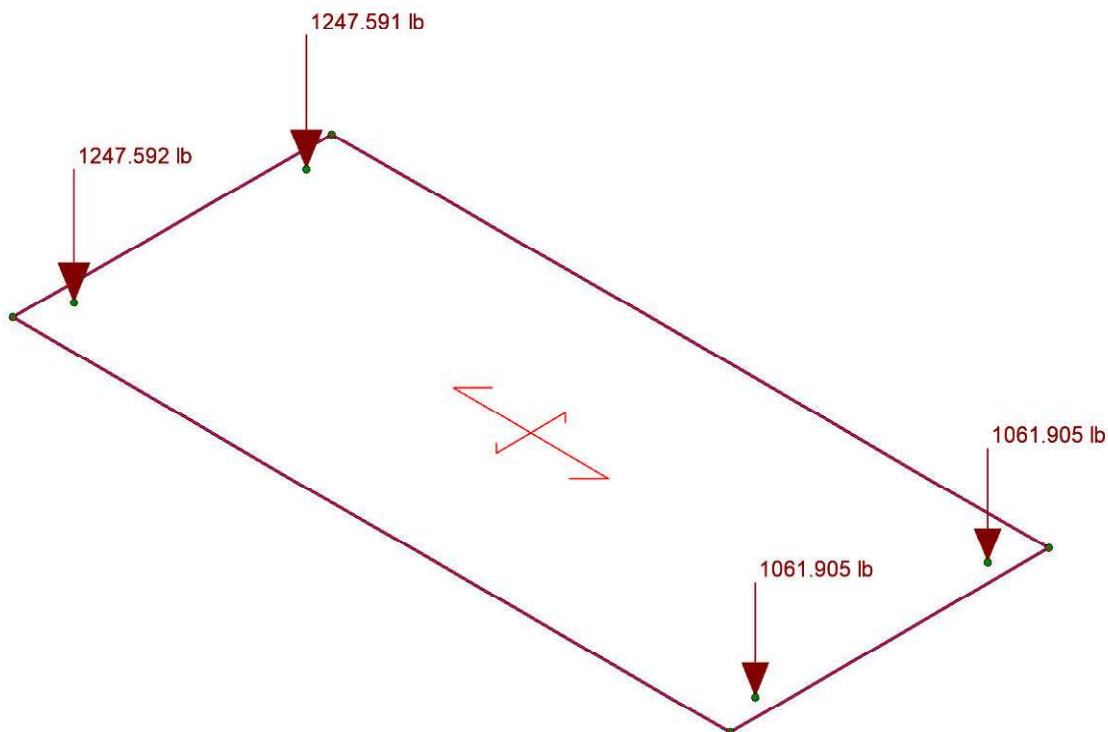
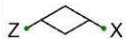
4114-C0041-C

SE04823C (Pad)

Wireframe

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Loads: DL - Dead Load



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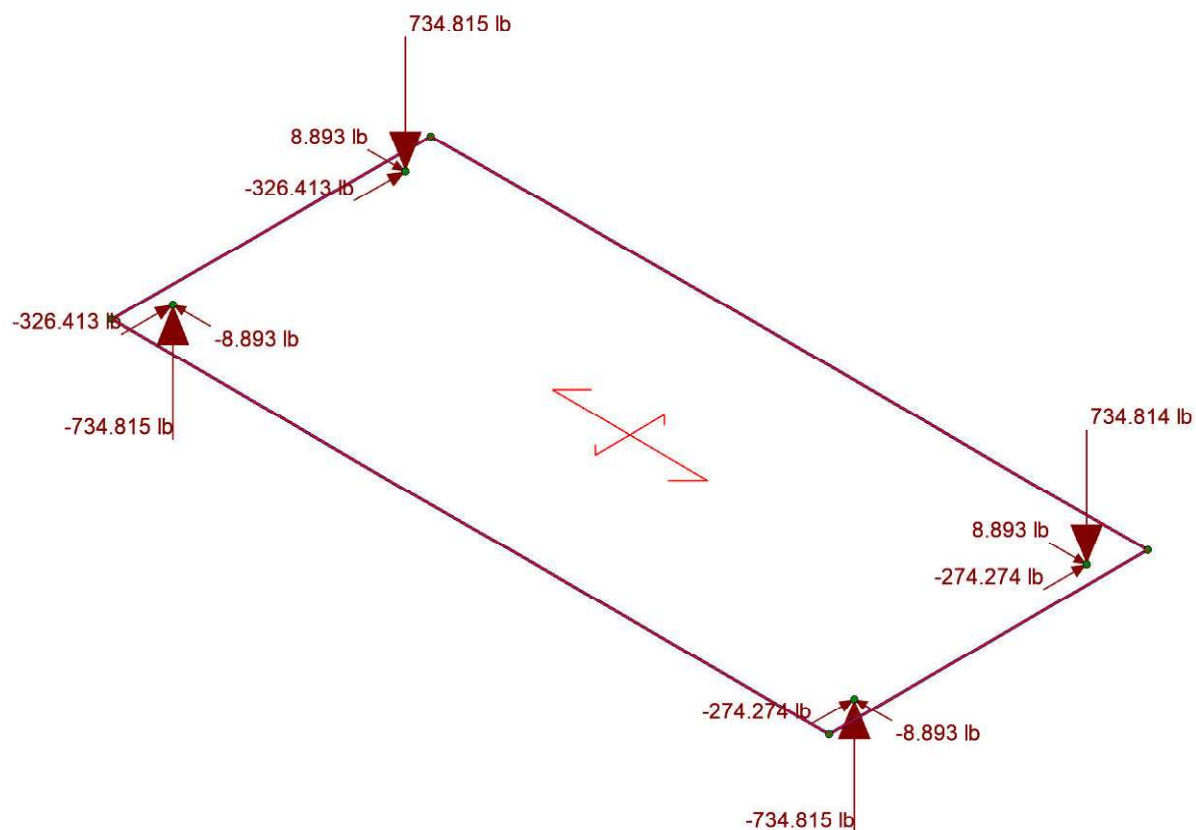
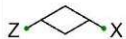
4114-C0041-C

SE04823C (Pad)

Dead Load

Apr 10, 2026 at 12:58 AM

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Loads: WLZ - Wind Load Z



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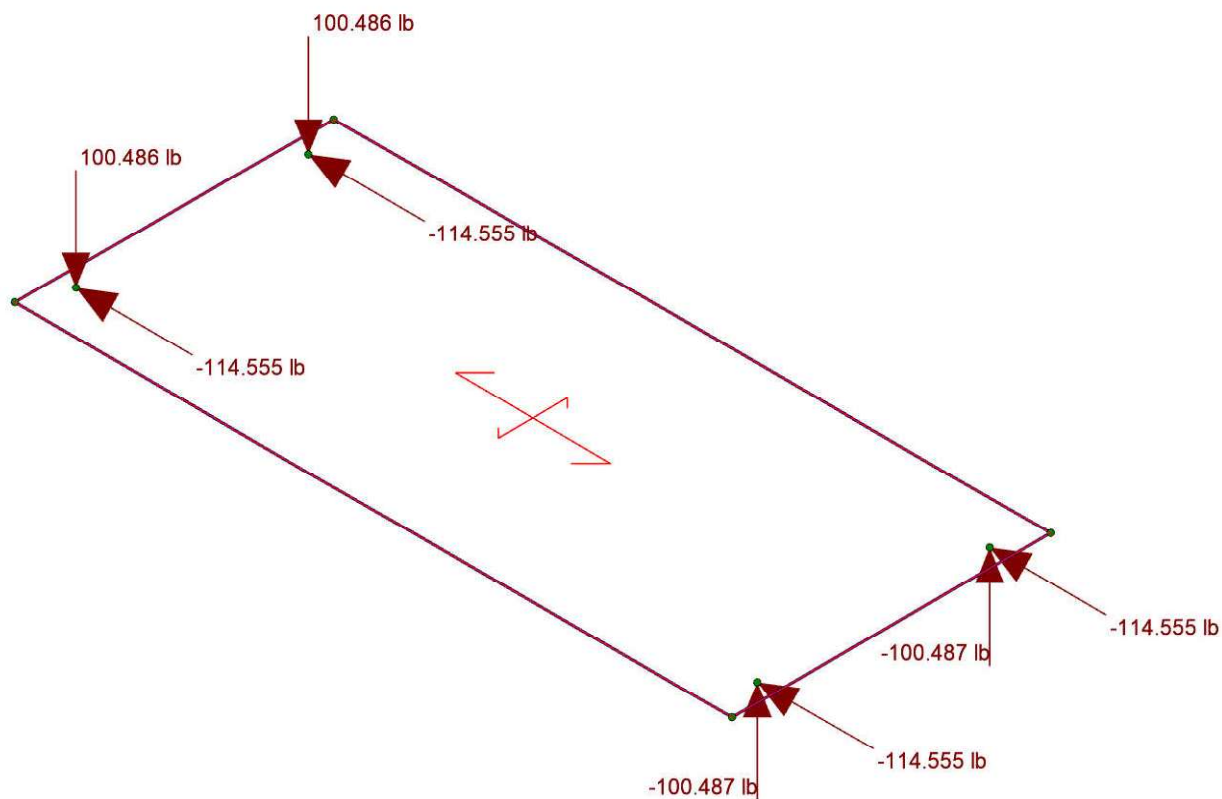
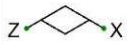
4114-C0041-C

SE04823C (Pad)

Wind Load Z

Apr 10, 2026 at 12:59 AM

SE04823C_PAD_loaded.r3d



Loads: WLX - Wind Load X



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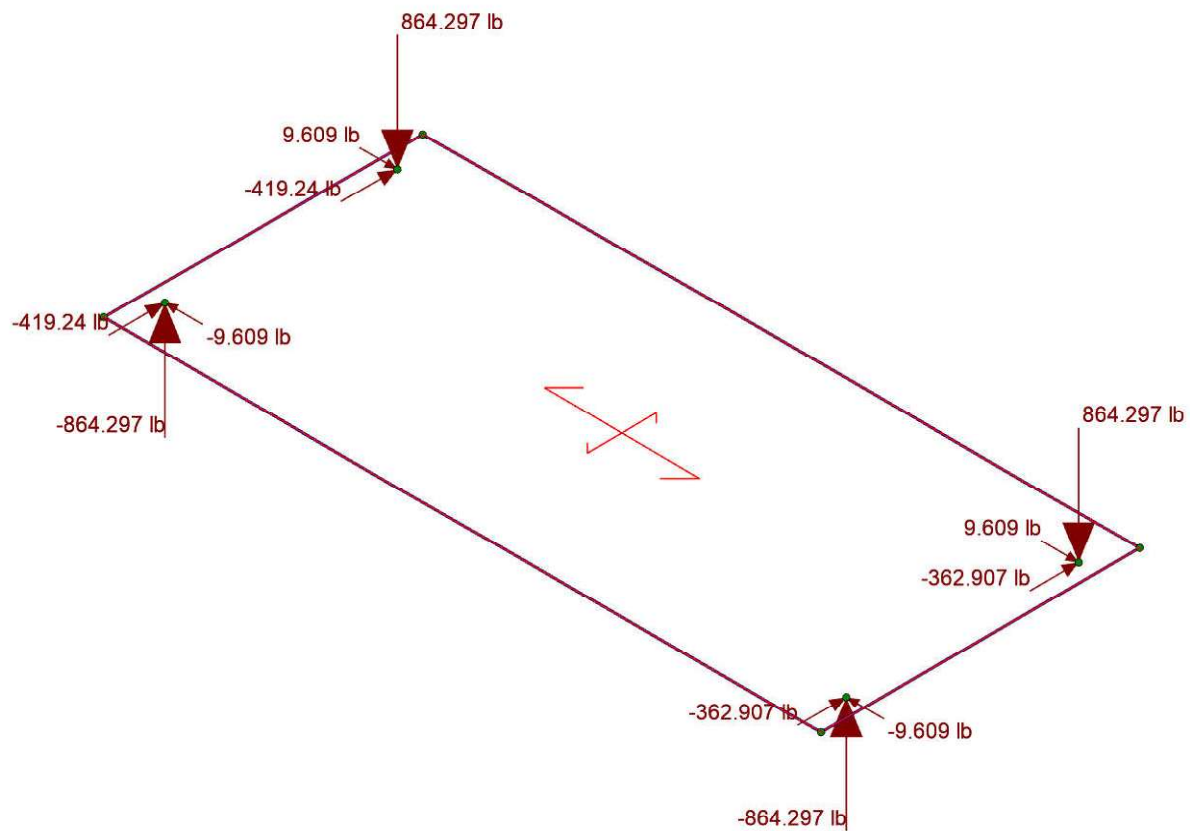
4114-C0041-C

SE04823C (Pad)

Wind Load X

Apr 10, 2026 at 12:59 AM

SE04823C_PAD_loaded.r3d



Loads: ELZ - Earthquake Load Z



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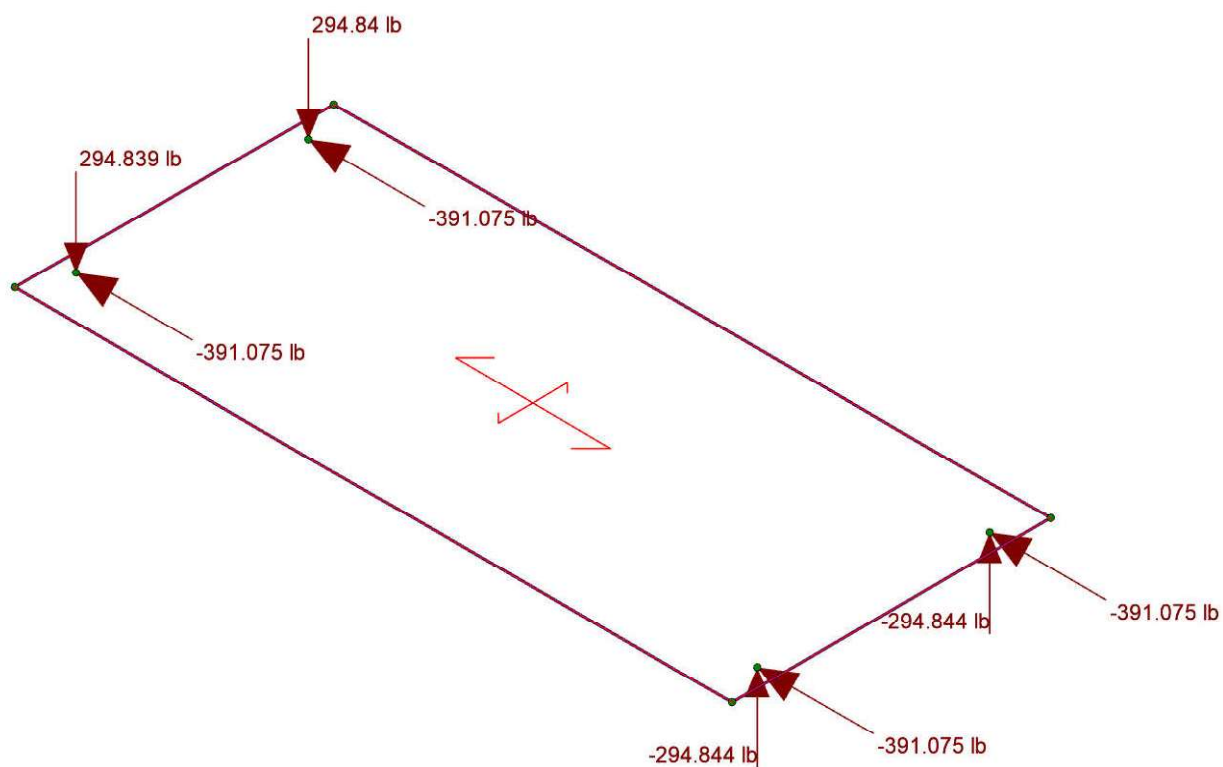
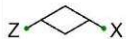
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SE04823C (Pad)

Seismic Load Z

Apr 10, 2026 at 01:00 AM

SE04823C_PAD_loaded.r3d



Loads: ELX - Earthquake Load X



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4114-C0041-C

SE04823C (Pad)

Seismic Load X

Apr 10, 2026 at 01:00 AM

SE04823C_PAD_loaded.r3d

Concrete Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-5}/^{\circ}\text{F}^{-1}$]	Density [lb/ft ³]	f _c [ksi]	Lambda	Flex Steel [ksi]	Shear Steel [ksi]
1	Conc3000NW	3156	1372	0.15	0.6	145	3	1	60	60
2	Conc3500NW	3409	1482	0.15	0.6	145	3.5	1	60	60
3	Conc4000NW	3644	1584	0.15	0.6	145	4	1	60	60
4	Conc3000LW	2085	907	0.15	0.6	110	3	0.75	60	60
5	Conc3500LW	2252	979	0.15	0.6	110	3.5	0.75	60	60
6	Conc4000LW	2408	1047	0.15	0.6	110	4	0.75	60	60
7	Conc3000NW VWR	3156	1372	0.15	0.6	145	3	1	70	60
8	Conc3500NW VWR	3409	1482	0.15	0.6	145	3.5	1	70	60
9	Conc4000NW VWR	3644	1584	0.15	0.6	145	4	1	70	60
10	Conc2500NW	2850	1239	0.15	0.6	145	2.5	1	60	60

Design Rules - Mat Slab

Label	Max Bending Chk	Max Shear Chk	Top Bar Bottom Bar	Min Top Bar Spacing [in]	Max Top Bar Spacing [in]	Min Bot Bar Spacing [in]	Max Bot Bar Spacing [in]	Spacing Increment [in]	Top Cover [in]	Bottom Cover [in]	Side Cover [in]	Rebar Options
1 Typical	1	1	#5 #5	12	12	12	12	1	3	3	3	Force Top and Bottom

Soil Definitions

Label	Layers	Subgrade Modulus [lb/ft ³]	Allowable Bearing [psf]	Default
1 Default	Single	36000	1500	Yes

Soil Regions

Label	Soil Definition
1 NEW1	Default

Design Strips

Label	Rebar Angle from Plan Horizontal (deg)	No. of Design Cuts	Design Rule
1 DS1	0	50	Typical
2 DS2	90	50	Typical

Material Take-Off

Material	Quantity	Volume[yds^3]	Weight[LB]
1 Slabs			
2 Conc2500NW	1	1.3	5220
3			
4 Totals			
5 Conc2500NW		1.3	5220
6 Total Concrete		1.3	5220

Load Combination

Label	Solve	Service	SF	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor
1 IBC 21/ASCE 1	Yes	Yes	1.5	DL	1												
2 IBC 21/ASCE 2	Yes	Yes	1.5	DL	1	HL	1	LL	1	LLS	1						

Load Combination (Continued)

Label	Solve	Service	SF	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor
3 IBC 21/ASCE 3 (a)	Yes	Yes	1.5	DL	1	HL	1	RLL	1								
4 IBC 21/ASCE 3 (b)	Yes	Yes	1.5	DL	1	HL	1	SL	1								
5 IBC 21/ASCE 3 (c)	Yes	Yes	1.5	DL	1	HL	1	RL	1								
6 IBC 21/ASCE 4 (a)	Yes	Yes	1.5	DL	1	HL	1	LL	0.75	LLS	0.75	RLL	0.75				
7 IBC 21/ASCE 4 (b)	Yes	Yes	1.5	DL	1	HL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75		
8 IBC 21/ASCE 4 (c)	Yes	Yes	1.5	DL	1	HL	1	LL	0.75	LLS	0.75	RL	0.75				
9 IBC 21/ASCE 5 (a) (a)	Yes	Yes	1.5	DL	1	HL	1	WLX	0.6								
10 IBC 21/ASCE 5 (a) (b)	Yes	Yes	1.5	DL	1	HL	1	WLZ	0.6								
11 IBC 21/ASCE 5 (a) (c)	Yes	Yes	1.5	DL	1	HL	1	WLX	-0.6								
12 IBC 21/ASCE 5 (a) (d)	Yes	Yes	1.5	DL	1	HL	1	WLZ	-0.6								
13 IBC 21/ASCE 6 (a) (a)	Yes	Yes	1.5	DL	1	HL	1	WLX	0.45	LL	0.75	LLS	0.75	RLL	0.75		
14 IBC 21/ASCE 6 (a) (b)	Yes	Yes	1.5	DL	1	HL	1	WLZ	0.45	LL	0.75	LLS	0.75	RLL	0.75		
15 IBC 21/ASCE 6 (a) (c)	Yes	Yes	1.5	DL	1	HL	1	WLX	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
16 IBC 21/ASCE 6 (a) (d)	Yes	Yes	1.5	DL	1	HL	1	WLZ	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
17 IBC 21/ASCE 6 (b) (a)	Yes	Yes	1.5	DL	1	HL	1	WLX	0.45	LL	0.75	LLS	0.75	SL	0.75		
18 IBC 21/ASCE 6 (b) (b)	Yes	Yes	1.5	DL	1	HL	1	WLZ	0.45	LL	0.75	LLS	0.75	SL	0.75		
19 IBC 21/ASCE 6 (b) (c)	Yes	Yes	1.5	DL	1	HL	1	WLX	-0.45	LL	0.75	LLS	0.75	SL	0.75		
20 IBC 21/ASCE 6 (b) (d)	Yes	Yes	1.5	DL	1	HL	1	WLZ	-0.45	LL	0.75	LLS	0.75	SL	0.75		
21 IBC 21/ASCE 6 (c) (a)	Yes	Yes	1.5	DL	1	HL	1	WLX	0.45	LL	0.75	LLS	0.75	RL	0.75		
22 IBC 21/ASCE 6 (c) (b)	Yes	Yes	1.5	DL	1	HL	1	WLZ	0.45	LL	0.75	LLS	0.75	RL	0.75		
23 IBC 21/ASCE 6 (c) (c)	Yes	Yes	1.5	DL	1	HL	1	WLX	-0.45	LL	0.75	LLS	0.75	RL	0.75		
24 IBC 21/ASCE 6 (c) (d)	Yes	Yes	1.5	DL	1	HL	1	WLZ	-0.45	LL	0.75	LLS	0.75	RL	0.75		
25 IBC 21/ASCE 7 (a) (a)	Yes	Yes		DL	0.6	HL	1	WLX	0.6								
26 IBC 21/ASCE 7 (a) (b)	Yes	Yes		DL	0.6	HL	1	WLZ	0.6								
27 IBC 21/ASCE 7 (a) (c)	Yes	Yes		DL	0.6	HL	1	WLX	-0.6								
28 IBC 21/ASCE 7 (a) (d)	Yes	Yes		DL	0.6	HL	1	WLZ	-0.6								
29 IBC 21/ASCE 7 (b) (a)	Yes	Yes		DL	0.6	HL	0.6	WLX	0.6								
30 IBC 21/ASCE 7 (b) (b)	Yes	Yes		DL	0.6	HL	0.6	WLZ	0.6								
31 IBC 21/ASCE 7 (b) (c)	Yes	Yes		DL	0.6	HL	0.6	WLX	-0.6								
32 IBC 21/ASCE 7 (b) (d)	Yes	Yes		DL	0.6	HL	0.6	WLZ	-0.6								
33 IBC 21/ASCE 8 (a)	Yes	Yes	1.5	DL	1.142	HL	1	ELX	0.7								
34 IBC 21/ASCE 8 (b)	Yes	Yes	1.5	DL	1.142	HL	1	ELZ	0.7								
35 IBC 21/ASCE 8 (c)	Yes	Yes	1.5	DL	1.142	HL	1	ELX	-0.7								
36 IBC 21/ASCE 8 (d)	Yes	Yes	1.5	DL	1.142	HL	1	ELZ	-0.7								
37 IBC 21/ASCE 9 (a)	Yes	Yes	1.5	DL	1.107	HL	1	ELX	0.525	LL	0.75	LLS	0.75	SL	0.75		
38 IBC 21/ASCE 9 (b)	Yes	Yes	1.5	DL	1.107	HL	1	ELZ	0.525	LL	0.75	LLS	0.75	SL	0.75		
39 IBC 21/ASCE 9 (c)	Yes	Yes	1.5	DL	1.107	HL	1	ELX	-0.525	LL	0.75	LLS	0.75	SL	0.75		
40 IBC 21/ASCE 9 (d)	Yes	Yes	1.5	DL	1.107	HL	1	ELZ	-0.525	LL	0.75	LLS	0.75	SL	0.75		
41 IBC 21/ASCE 10 (a) (a)	Yes	Yes		DL	0.458	HL	1	ELX	0.7								
42 IBC 21/ASCE 10 (a) (b)	Yes	Yes		DL	0.458	HL	1	ELZ	0.7								
43 IBC 21/ASCE 10 (a) (c)	Yes	Yes		DL	0.458	HL	1	ELX	-0.7								
44 IBC 21/ASCE 10 (a) (d)	Yes	Yes		DL	0.458	HL	1	ELZ	-0.7								
45 IBC 21/ASCE 10 (b) (a)	Yes	Yes		DL	0.458	HL	0.6	ELX	0.7								
46 IBC 21/ASCE 10 (b) (b)	Yes	Yes		DL	0.458	HL	0.6	ELZ	0.7								
47 IBC 21/ASCE 10 (b) (c)	Yes	Yes		DL	0.458	HL	0.6	ELX	-0.7								
48 IBC 21/ASCE 10 (b) (d)	Yes	Yes		DL	0.458	HL	0.6	ELZ	-0.7								
49 IBC 21/ASCE Strength 1	Yes			DL	1.4												
50 IBC 21/ASCE Strength 2 (a)	Yes			DL	1.2	LL	1.6	LLS	1.6	HL	1.6	RLL	0.5				
51 IBC 21/ASCE Strength 2 (b)	Yes			DL	1.2	LL	1.6	LLS	1.6	HL	1.6	SL	0.5	SLN	0.5		
52 IBC 21/ASCE Strength 2 (c)	Yes			DL	1.2	LL	1.6	LLS	1.6	HL	1.6	RL	0.5				

Load Combination (Continued)

Label	Solve	Service	SF	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor
53	IBC 21/ASCE Strength 3 (a)	Yes		DL	1.2	RLL	1.6	HL	1.6	LL	0.5	LLS	1				
54	IBC 21/ASCE Strength 3 (b) (a)	Yes		DL	1.2	RLL	1.6	HL	1.6	WLX	0.5						
55	IBC 21/ASCE Strength 3 (b) (b)	Yes		DL	1.2	RLL	1.6	HL	1.6	WLZ	0.5						
56	IBC 21/ASCE Strength 3 (b) (c)	Yes		DL	1.2	RLL	1.6	HL	1.6	WLX	-0.5						
57	IBC 21/ASCE Strength 3 (b) (d)	Yes		DL	1.2	RLL	1.6	HL	1.6	WLZ	-0.5						
58	IBC 21/ASCE Strength 3 (c)	Yes		DL	1.2	SL	1.6	SLN	1.6	HL	1.6	LL	0.5	LLS	1		
59	IBC 21/ASCE Strength 3 (d) (a)	Yes		DL	1.2	SL	1.6	SLN	1.6	HL	1.6	WLX	0.5				
60	IBC 21/ASCE Strength 3 (d) (b)	Yes		DL	1.2	SL	1.6	SLN	1.6	HL	1.6	WLZ	0.5				
61	IBC 21/ASCE Strength 3 (d) (c)	Yes		DL	1.2	SL	1.6	SLN	1.6	HL	1.6	WLX	-0.5				
62	IBC 21/ASCE Strength 3 (d) (d)	Yes		DL	1.2	SL	1.6	SLN	1.6	HL	1.6	WLZ	-0.5				
63	IBC 21/ASCE Strength 3 (e)	Yes		DL	1.2	RL	1.6	HL	1.6	LL	0.5	LLS	1				
64	IBC 21/ASCE Strength 3 (f) (a)	Yes		DL	1.2	RL	1.6	HL	1.6	WLX	0.5						
65	IBC 21/ASCE Strength 3 (f) (b)	Yes		DL	1.2	RL	1.6	HL	1.6	WLZ	0.5						
66	IBC 21/ASCE Strength 3 (f) (c)	Yes		DL	1.2	RL	1.6	HL	1.6	WLX	-0.5						
67	IBC 21/ASCE Strength 3 (f) (d)	Yes		DL	1.2	RL	1.6	HL	1.6	WLZ	-0.5						
68	IBC 21/ASCE Strength 4 (a)	Yes		DL	1.2	WLX	1	LL	0.5	LLS	1	HL	1.6	RLL	0.5		
69	IBC 21/ASCE Strength 4 (a) (b)	Yes		DL	1.2	WLZ	1	LL	0.5	LLS	1	HL	1.6	RLL	0.5		
70	IBC 21/ASCE Strength 4 (a) (c)	Yes		DL	1.2	WLX	-1	LL	0.5	LLS	1	HL	1.6	RLL	0.5		
71	IBC 21/ASCE Strength 4 (a) (d)	Yes		DL	1.2	WLZ	-1	LL	0.5	LLS	1	HL	1.6	RLL	0.5		
72	IBC 21/ASCE Strength 4 (b) (a)	Yes		DL	1.2	WLX	1	LL	0.5	LLS	1	HL	1.6	SL	0.5	SLN	0.5
73	IBC 21/ASCE Strength 4 (b) (b)	Yes		DL	1.2	WLZ	1	LL	0.5	LLS	1	HL	1.6	SL	0.5	SLN	0.5
74	IBC 21/ASCE Strength 4 (b) (c)	Yes		DL	1.2	WLX	-1	LL	0.5	LLS	1	HL	1.6	SL	0.5	SLN	0.5
75	IBC 21/ASCE Strength 4 (b) (d)	Yes		DL	1.2	WLZ	-1	LL	0.5	LLS	1	HL	1.6	SL	0.5	SLN	0.5
76	IBC 21/ASCE Strength 4 (c) (a)	Yes		DL	1.2	WLX	1	LL	0.5	LLS	1	HL	1.6	RL	0.5		
77	IBC 21/ASCE Strength 4 (c) (b)	Yes		DL	1.2	WLZ	1	LL	0.5	LLS	1	HL	1.6	RL	0.5		
78	IBC 21/ASCE Strength 4 (c) (c)	Yes		DL	1.2	WLX	-1	LL	0.5	LLS	1	HL	1.6	RL	0.5		
79	IBC 21/ASCE Strength 4 (c) (d)	Yes		DL	1.2	WLZ	-1	LL	0.5	LLS	1	HL	1.6	RL	0.5		
80	IBC 21/ASCE Strength 5 (a) (a)	Yes		DL	0.9	WLX	1	HL	1.6								
81	IBC 21/ASCE Strength 5 (a) (b)	Yes		DL	0.9	WLZ	1	HL	1.6								
82	IBC 21/ASCE Strength 5 (a) (c)	Yes		DL	0.9	WLX	-1	HL	1.6								
83	IBC 21/ASCE Strength 5 (a) (d)	Yes		DL	0.9	WLZ	-1	HL	1.6								
84	IBC 21/ASCE Strength 5 (b) (a)	Yes		DL	0.9	WLX	1	HL	0.9								
85	IBC 21/ASCE Strength 5 (b) (b)	Yes		DL	0.9	WLZ	1	HL	0.9								
86	IBC 21/ASCE Strength 5 (b) (c)	Yes		DL	0.9	WLX	-1	HL	0.9								
87	IBC 21/ASCE Strength 5 (b) (d)	Yes		DL	0.9	WLZ	-1	HL	0.9								
88	IBC 21/ASCE Strength 6 (a)	Yes		DL	1.403	ELX	1	LL	0.5	LLS	1	HL	1.6	SL	0.2	SLN	0.7
89	IBC 21/ASCE Strength 6 (b)	Yes		DL	1.403	ELZ	1	LL	0.5	LLS	1	HL	1.6	SL	0.2	SLN	0.7
90	IBC 21/ASCE Strength 6 (c)	Yes		DL	1.403	ELX	-1	LL	0.5	LLS	1	HL	1.6	SL	0.2	SLN	0.7
91	IBC 21/ASCE Strength 6 (d)	Yes		DL	1.403	ELZ	-1	LL	0.5	LLS	1	HL	1.6	SL	0.2	SLN	0.7
92	IBC 21/ASCE Strength 7 (a) (a)	Yes		DL	0.697	ELX	1	HL	1.6								
93	IBC 21/ASCE Strength 7 (a) (b)	Yes		DL	0.697	ELZ	1	HL	1.6								
94	IBC 21/ASCE Strength 7 (a) (c)	Yes		DL	0.697	ELX	-1	HL	1.6								
95	IBC 21/ASCE Strength 7 (a) (d)	Yes		DL	0.697	ELZ	-1	HL	1.6								
96	IBC 21/ASCE Strength 7 (b) (a)	Yes		DL	0.697	ELX	1	HL	0.9								
97	IBC 21/ASCE Strength 7 (b) (b)	Yes		DL	0.697	ELZ	1	HL	0.9								
98	IBC 21/ASCE Strength 7 (b) (c)	Yes		DL	0.697	ELX	-1	HL	0.9								
99	IBC 21/ASCE Strength 7 (b) (d)	Yes		DL	0.697	ELZ	-1	HL	0.9								

Load Category

	Category	Node Loads
1	DL	4
2	ELX	8
3	ELZ	12
4	WLX	8
5	WLZ	12
6	OL1	4
7	OL2	8
8	OL3	8

Nodal Loads (Cat 1: DL)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	Y	1247.591
2	R3D_N6	Y	1061.905
3	R3D_N7	Y	1061.905
4	R3D_N8	Y	1247.592

Nodal Loads (Cat 72: OL1)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	Y	290.593
2	R3D_N6	Y	241.548
3	R3D_N7	Y	241.548
4	R3D_N8	Y	290.593

Nodal Loads (Cat 73: OL2)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	Y	30.824
2	R3D_N4	Z	-13.721
3	R3D_N6	Y	-30.824
4	R3D_N6	Z	-11.538
5	R3D_N7	Y	30.824
6	R3D_N7	Z	-11.538
7	R3D_N8	Y	-30.824
8	R3D_N8	Z	-13.721

Nodal Loads (Cat 74: OL3)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	X	-4.95
2	R3D_N4	Y	4.329
3	R3D_N6	X	-4.95
4	R3D_N6	Y	-4.329
5	R3D_N7	X	-4.95
6	R3D_N7	Y	-4.329
7	R3D_N8	X	-4.95
8	R3D_N8	Y	4.329

Nodal Loads (Cat 16: ELX)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	X	-391.075
2	R3D_N4	Y	294.84
3	R3D_N6	X	-391.075
4	R3D_N6	Y	-294.844
5	R3D_N7	X	-391.075
6	R3D_N7	Y	-294.844
7	R3D_N8	X	-391.075
8	R3D_N8	Y	294.839

Nodal Loads (Cat 18: ELZ)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	X	9.609
2	R3D_N4	Y	864.297
3	R3D_N4	Z	-419.24
4	R3D_N6	X	-9.609
5	R3D_N6	Y	-864.297
6	R3D_N6	Z	-362.907
7	R3D_N7	X	9.609
8	R3D_N7	Y	864.297
9	R3D_N7	Z	-362.907
10	R3D_N8	X	-9.609
11	R3D_N8	Y	-864.297
12	R3D_N8	Z	-419.24

Nodal Loads (Cat 19: WLX)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	X	-114.555
2	R3D_N4	Y	100.486
3	R3D_N6	X	-114.555
4	R3D_N6	Y	-100.487
5	R3D_N7	X	-114.555
6	R3D_N7	Y	-100.487
7	R3D_N8	X	-114.555
8	R3D_N8	Y	100.486

Nodal Loads (Cat 21: WLZ)

	Node Label	Direction	Magnitude [lb, lb-ft]
1	R3D_N4	X	8.893
2	R3D_N4	Y	734.815
3	R3D_N4	Z	-326.413
4	R3D_N6	X	-8.893
5	R3D_N6	Y	-734.815
6	R3D_N6	Z	-274.274
7	R3D_N7	X	8.893
8	R3D_N7	Y	734.814
9	R3D_N7	Z	-274.274

Nodal Loads (Cat 21: WLZ) (Continued)

	Node Label	Direction	Magnitude [lb, lb-ft]
10	R3D N8	X	-8.893
11	R3D N8	Y	-734.815
12	R3D N8	Z	-326.413

Slab Stability - Overturning

	LC	Slab	Angle[deg]	Mo-xx[lb-ft]	Ms-xx[lb-ft]	Mo-zz[lb-ft]	Ms-zz[lb-ft]	Ms-xx/Mo-xx	Ms-zz/Mo-zz
1	1	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
2	2	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
3	3	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
4	4	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
5	5	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
6	6	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
7	7	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
8	8	S1	0	0	19677.982	0	45863.077	9.99+	9.99+
9	9	S1	0	0.004	19677.982	1305.932	42687.84	9.99+	9.99+
10	10	S1	0	3292.677	19677.982	0	45863.078	5.976	9.99+
11	11	S1	0	0	19677.986	1305.916	45863.077	9.99+	9.99+
12	12	S1	0	3292.676	19677.981	0.002	45863.077	5.976	9.99+
13	13	S1	0	0.003	19677.982	979.449	42687.84	9.99+	9.99+
14	14	S1	0	2469.507	19677.982	0	45863.078	7.968	9.99+
15	15	S1	0	0	19677.985	979.437	45863.077	9.99+	9.99+
16	16	S1	0	2469.507	19677.981	0.001	45863.077	7.968	9.99+
17	17	S1	0	0.003	19677.982	979.449	42687.84	9.99+	9.99+
18	18	S1	0	2469.507	19677.982	0	45863.078	7.968	9.99+
19	19	S1	0	0	19677.985	979.437	45863.077	9.99+	9.99+
20	20	S1	0	2469.507	19677.981	0.001	45863.077	7.968	9.99+
21	21	S1	0	0.003	19677.982	979.449	42687.84	9.99+	9.99+
22	22	S1	0	2469.507	19677.982	0	45863.078	7.968	9.99+
23	23	S1	0	0	19677.985	979.437	45863.077	9.99+	9.99+
24	24	S1	0	2469.507	19677.981	0.001	45863.077	7.968	9.99+
25	25	S1	0	0.004	11806.789	1305.932	25612.704	9.99+	9.99+
26	26	S1	0	3292.677	11806.789	0	27517.848	3.586	9.99+
27	27	S1	0	0	11806.793	1305.916	27517.846	9.99+	9.99+
28	28	S1	0	3292.676	11806.789	0.002	27517.846	3.586	9.99+
29	29	S1	0	0.004	11806.789	1305.932	25612.704	9.99+	9.99+
30	30	S1	0	3292.677	11806.789	0	27517.848	3.586	9.99+
31	31	S1	0	0	11806.793	1305.916	27517.846	9.99+	9.99+
32	32	S1	0	3292.676	11806.789	0.002	27517.846	3.586	9.99+
33	33	S1	0	0.013	22472.256	4624.293	48749.513	9.99+	9.99+
34	34	S1	0	4624.219	22472.256	0	52375.636	4.86	9.99+
35	35	S1	0	0	22472.268	4624.237	52375.634	9.99+	9.99+
36	36	S1	0	4624.218	22472.254	0.002	52375.634	4.86	9.99+
37	37	S1	0	0.01	21783.526	3468.219	47255.439	9.99+	9.99+
38	38	S1	0	3468.165	21783.526	0	50770.428	6.281	9.99+
39	39	S1	0	0	21783.536	3468.178	50770.426	9.99+	9.99+
40	40	S1	0	3468.164	21783.525	0.002	50770.426	6.281	9.99+
41	41	S1	0	0.013	9012.516	4624.293	19551.031	9.99+	4.228
42	42	S1	0	4624.219	9012.516	0	21005.292	1.949	9.99+
43	43	S1	0	0	9012.528	4624.237	21005.289	9.99+	4.542
44	44	S1	0	4624.218	9012.515	0.002	21005.289	1.949	9.99+

Slab Stability - Overturning (Continued)

	LC	Slab	Angle[deg]	Mo-xx[lb-ft]	Ms-xx[lb-ft]	Mo-zz[lb-ft]	Ms-zz[lb-ft]	Ms-xx/Mo-xx	Ms-zz/Mo-zz
45	45	S1	0	0.013	9012.516	4624.293	19551.031	9.99+	4.228
46	46	S1	0	4624.219	9012.516	0	21005.292	1.949	9.99+
47	47	S1	0	0	9012.528	4624.237	21005.289	9.99+	4.542
48	48	S1	0	4624.218	9012.515	0.002	21005.289	1.949	9.99+

Slab Stability - Sliding

	LC	Slab	Angle[deg]	Va-xx[lb]	Vr-xx[lb]	Va-zz[lb]	Vr-zz[lb]	SR-xx	SR-zz
1	1	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
2	2	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
3	3	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
4	4	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
5	5	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
6	6	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
7	7	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
8	8	S1	0	0	4043.647	0	4793.647	9.99+	9.99+
9	9	S1	0	274.932	4043.646	0	4793.646	9.99+	9.99+
10	10	S1	0	0	4043.647	720.824	4793.647	9.99+	6.65
11	11	S1	0	274.932	4043.647	0	4793.647	9.99+	9.99+
12	12	S1	0	0	4043.647	720.824	4793.647	9.99+	6.65
13	13	S1	0	206.199	4043.646	0	4793.646	9.99+	9.99+
14	14	S1	0	0	4043.647	540.618	4793.647	9.99+	8.867
15	15	S1	0	206.199	4043.647	0	4793.647	9.99+	9.99+
16	16	S1	0	0	4043.647	540.618	4793.647	9.99+	8.867
17	17	S1	0	206.199	4043.646	0	4793.646	9.99+	9.99+
18	18	S1	0	0	4043.647	540.618	4793.647	9.99+	8.867
19	19	S1	0	206.199	4043.647	0	4793.647	9.99+	9.99+
20	20	S1	0	0	4043.647	540.618	4793.647	9.99+	8.867
21	21	S1	0	206.199	4043.646	0	4793.646	9.99+	9.99+
22	22	S1	0	0	4043.647	540.618	4793.647	9.99+	8.867
23	23	S1	0	206.199	4043.647	0	4793.647	9.99+	9.99+
24	24	S1	0	0	4043.647	540.618	4793.647	9.99+	8.867
25	25	S1	0	274.932	2666.187	0	3416.187	9.698	9.99+
26	26	S1	0	0	2666.188	720.824	3416.188	9.99+	4.739
27	27	S1	0	274.932	2666.189	0	3416.189	9.698	9.99+
28	28	S1	0	0	2666.188	720.824	3416.188	9.99+	4.739
29	29	S1	0	274.932	2666.187	0	3416.187	9.698	9.99+
30	30	S1	0	0	2666.188	720.824	3416.188	9.99+	4.739
31	31	S1	0	274.932	2666.189	0	3416.189	9.698	9.99+
32	32	S1	0	0	2666.188	720.824	3416.188	9.99+	4.739
33	33	S1	0	1095.01	4532.642	0	5282.642	4.139	9.99+
34	34	S1	0	0	4532.645	1095.006	5282.645	9.99+	4.824
35	35	S1	0	1095.01	4532.647	0	5282.647	4.139	9.99+
36	36	S1	0	0	4532.645	1095.006	5282.645	9.99+	4.824
37	37	S1	0	821.257	4412.115	0	5162.115	5.372	9.99+
38	38	S1	0	0	4412.117	821.255	5162.117	9.99+	6.286
39	39	S1	0	821.257	4412.119	0	5162.119	5.372	9.99+
40	40	S1	0	0	4412.117	821.255	5162.117	9.99+	6.286
41	41	S1	0	1095.01	2177.188	0	2927.188	1.988	9.99+
42	42	S1	0	0	2177.19	1095.006	2927.19	9.99+	2.673
43	43	S1	0	1095.01	2177.192	0	2927.192	1.988	9.99+

Slab Stability - Sliding (Continued)

	LC	Slab	Angle[deg]	Va-xx[lb]	Vr-xx[lb]	Va-zz[lb]	Vr-zz[lb]	SR-xx	SR-zz
44	44	S1	0	0	2177.19	1095.006	2927.19	9.99+	2.673
45	45	S1	0	1095.01	2177.188	0	2927.188	1.988	9.99+
46	46	S1	0	0	2177.19	1095.006	2927.19	9.99+	2.673
47	47	S1	0	1095.01	2177.192	0	2927.192	1.988	9.99+
48	48	S1	0	0	2177.19	1095.006	2927.19	9.99+	2.673

Strip Reinforcing

	Label	UC Top	LC Top	Bars	Gov	Design	Cut	UC Top	UC Bot	LC Bot	Bars/Mid	Bars	Gov	Design	Cut	UC Bot	UC Shear	LC	Gov	Design	Cut	UC Shear
1	DS1	0.013	90	#5@12in		DS1-X25		0	N/A	#5@12in		NA		0.018	90	DS1-X50						
2	DS2	0.106	88	#5@12in		DS2-X25		0	N/A	#5@12in		NA		0.114	88	DS2-X13						

Envelope Slab Soil Pressures

	Label	Max UC	Max LC	Soil Pressure[psf]	Allowable Bearing[psf]	Node
1	S1	0.306	34	459.235	1500	N13

Slab Stability Check

PROJECT INFORMATION	
Site Number:	SE04823C
Site Name:	Washington State Fair / Light Pole
Description:	Equipment Pad

CODE STANDARDS	
Building Code:	2021 IBC
TIA Standard:	TIA-222-H
ASCE Standard:	ASCE 7-16

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OVERTURNING CHECK				
Resisting Moment M _{s-xx} /Mo-xx:	Resisting Moment M _{s-zz} /Mo-zz:	Safety Factor	Overturning xx Capacity	Overturning zz Capacity
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
5.976	9.99+	1.5	25.1%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
5.976	9.99+	1.5	25.1%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
7.968	9.99+	1.5	18.8%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
7.968	9.99+	1.5	18.8%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
7.968	9.99+	1.5	18.8%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
7.968	9.99+	1.5	18.8%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
7.968	9.99+	1.5	18.8%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
7.968	9.99+	1.5	18.8%	15.0%
9.99+	9.99+	1.0	10.0%	10.0%
3.586	9.99+	1.0	27.9%	10.0%
9.99+	9.99+	1.0	10.0%	10.0%
3.586	9.99+	1.0	27.9%	10.0%
9.99+	9.99+	1.0	10.0%	10.0%
3.586	9.99+	1.0	27.9%	10.0%
9.99+	9.99+	1.0	10.0%	10.0%
3.586	9.99+	1.0	27.9%	10.0%
9.99+	9.99+	1.5	15.0%	15.0%
4.86	9.99+	1.5	30.9%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
4.86	9.99+	1.5	30.9%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
6.281	9.99+	1.5	23.9%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
6.281	9.99+	1.5	23.9%	15.0%
9.99+	4.228	1.0	10.0%	23.7%
1.949	9.99+	1.0	51.3%	10.0%
9.99+	4.542	1.0	10.0%	22.0%
1.949	9.99+	1.0	51.3%	10.0%
9.99+	4.228	1.0	10.0%	23.7%
1.949	9.99+	1.0	51.3%	10.0%
9.99+	4.542	1.0	10.0%	22.0%
1.949	9.99+	1.0	51.3%	10.0%

51.3%	23.7%
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SLIDING CHECK				
Sliding Ratio SR-xx:	Sliding Ratio SR-zz:	Safety Factor	Sliding xx Capacity	Sliding zz Capacity
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	6.65	1.5	15.0%	22.6%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	6.65	1.5	15.0%	22.6%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	8.867	1.5	15.0%	16.9%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	8.867	1.5	15.0%	16.9%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	8.867	1.5	15.0%	16.9%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	8.867	1.5	15.0%	16.9%
9.99+	9.99+	1.5	15.0%	15.0%
9.99+	8.867	1.5	15.0%	16.9%
9.698	9.99+	1.0	10.3%	10.0%
9.99+	4.739	1.0	10.0%	21.1%
9.698	9.99+	1.0	10.3%	10.0%
9.99+	4.739	1.0	10.0%	21.1%
9.698	9.99+	1.0	10.3%	10.0%
9.99+	4.739	1.0	10.0%	21.1%
9.698	9.99+	1.0	10.3%	10.0%
9.99+	4.739	1.0	10.0%	21.1%
4.139	9.99+	1.5	36.2%	15.0%
9.99+	4.824	1.5	15.0%	31.1%
4.139	9.99+	1.5	36.2%	15.0%
9.99+	4.824	1.5	15.0%	31.1%
5.372	9.99+	1.5	27.9%	15.0%
9.99+	6.286	1.5	15.0%	23.9%
5.372	9.99+	1.5	27.9%	15.0%
9.99+	6.286	1.5	15.0%	23.9%
1.988	9.99+	1.0	50.3%	10.0%
9.99+	2.673	1.0	10.0%	37.4%
1.988	9.99+	1.0	50.3%	10.0%
9.99+	2.673	1.0	10.0%	37.4%
1.988	9.99+	1.0	50.3%	10.0%
9.99+	2.673	1.0	10.0%	37.4%
1.988	9.99+	1.0	50.3%	10.0%
9.99+	2.673	1.0	10.0%	37.4%

50.3%	37.4%
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INFINIGY8

PROJECT DATA	
Site Name:	Washington State Fair / Light Pole
Site Number:	SE04823C
Job Code:	4114-C0041-C
Date:	4/10/2026

ASCE 7 WIND PRESSURE - ROOFTOP CHIMNEYS, TANKS AND SIMILAR STRUCTURES
Structure Description:
48 kW Generator w/ 240 gal Fuel Tank

STRUCTURE INFORMATION		
Structure Cross Section:	Square Chimney, Tank, or Similar Structure	
Risk Category:	II	ASCE 7 Table 1.5-1
Ultimate Wind Speed (mph):	97	ASCE 7 Figure 26.5-1 A, B, or C
Ground Elevation, z_g (ft):	41.3	ASCE 7 Section 26.9 (7-16 only)
Roof height above ground level, h (ft):	0.0	(0.00 ft if ground mounted)

WIND LOAD PARAMETERS		
Wind Directionality Factor, K_d:	0.9	ASCE 7 Table 26.6-1
Ground Elevation Factor, K_e:	1.00	ASCE 7 Table 26.9-1 (7-16 only)
Exposure Category:	C	ASCE 7 Section 26.7
Topographic Factor, K_zt:	1.000	ASCE 7 Table 26.8 / Figure 26.8-1
Gust Effect Factor, G:	0.85	ASCE 7 Section 26.9

FORCE COEFFICIENT		
Smallest Horizontal Dimension, D (ft):	2.92	(long side)
Width of Structure, D_w (ft):	8.55	(same as "D" if structure is uniform width)
Height of Structure, h (ft):	7.50	
h/D:	2.57	
Force Coefficient, C_f:	1.33	ASCE 7 Fig. 29.4-1

WIND FORCE AT CENTROID OF STRUCTURE (3.8 FT)		
Velocity Pressure Exposure Coeff., K_z:	0.85	ASCE 7 Table 26.10-1
Velocity Pressure, q_z (psf):	18.4	ASCE 7 Eq. 26.10-1
F = q_z(GC_f) (psf):	20.7	ASCE 7 Eq. 29.4-1
Total Wind Shear (lbs):	1328.2	

SEISMIC DESIGN REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS (ASCE 7 CHAPTER 13)		
ap:	1.00	Amplification Factor - Table 13.5-1
Rp:	2.50	Response Modification Factor - Table 13.5-1
Ω_o :	2.00	Overstrength Coefficient - Table 13.5-1
Fastener to fastener distance:	33.50	in (short side)
Empty Weight:	2915	lbs (worst case wind)
Full Weight:	4619	lbs (worst case seismic)
z:	0.00	Attachment elevation (ft)
h:	0.00	Avg. Roof height (ft)
Ss:	1.270	
S1:	0.438	
Site Class:	D (Deflt.)	
Structure Class:	II	
Importance Factor:	1.000	
Fa:	1.20	ASCE 7 Table 11.4-1
Fv:	#N/A	ASCE 7 Table 11.4-2
SDS:	1.016	g
SD1:	#N/A	g
Fp Max:	7508.6	lbs 13.3.2
Fp Min:	1407.9	lbs 13.3.3
Fp Design:	750.9	lbs 13.3.1
E_{v7} Factor (0.9-0.2SDs):	0.697	
Total Seismic Design Shear Force:	1407.9	lbs (use in enercalc)

# of fastener locations (assumed half are on one side of structure)	
	10

BASE REACTIONS - SEISMIC		
V, seismic:	2815.7	lbs
Factored W ((0.9-0.2SDs)*W):	3218.5	lbs
R1:	5391.6	lbs
R2:	-2173.1	lbs
Axial Force per bolt (negative sign is tension):	-435	lbs
Shear Per Bolt:	282	lbs

BASE REACTIONS - WIND		
V, Wind:	1328.2	lbs
Factored Weight (0.9*W):	2623.5	lbs
R1:	3096.0	lbs
R2:	-472.5	lbs
Axial Force per bolt (negative sign is tension):	-94	lbs
Shear Per Bolt:	133	lbs

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Company:	Infinigy	Page:	1
Address:		Specifier:	MK
Phone Fax:		E-Mail:	
Design:	SE04823C_Generator Anchorage	Date:	4/14/2026
Fastening point:			

Specifier's comments:

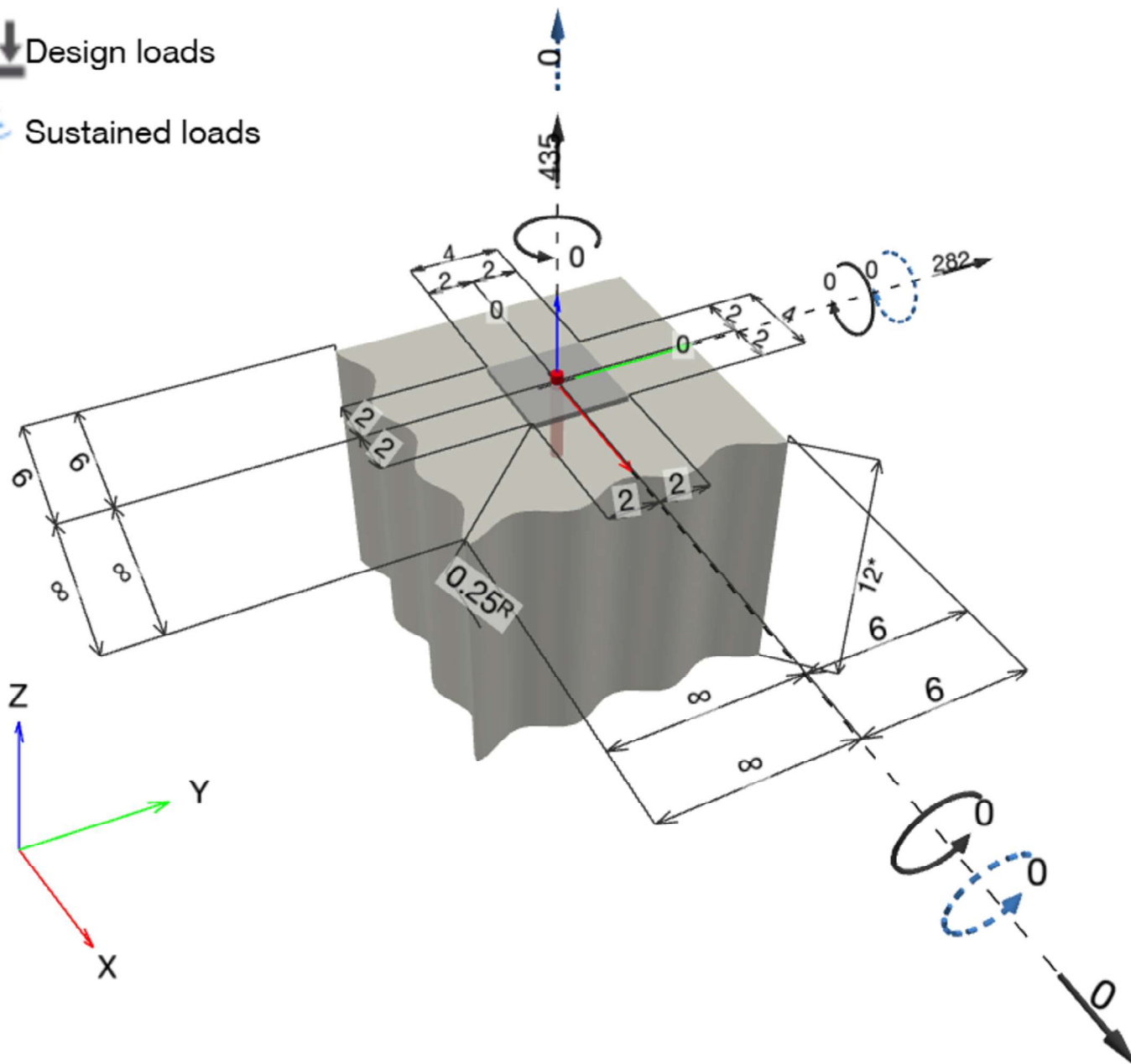
1 Input data



Anchor type and diameter:	HIT-HY 200 V3 + HAS-V-36 (ASTM F1554 Gr.36) 1/2
Item number:	2198021 HAS-V-36 1/2"x4-1/2" (element) / 2334276 HIT-HY 200-R V3 (adhesive)
Specification text:	HILTI Ø 1/2 IN HIT-HY 200 V3 + HAS-V-36 (ASTM F1554 GR.36) WITH 3.25 IN NOMINAL EMBEDMENT DEPTH PER ICC-ES ESR-4868 , HAMMER DRILL BIT INSTALLATION PER MPII
Effective embedment depth:	$h_{ef,act} = 3.250 \text{ in.}$ ($h_{ef,limit} = - \text{ in.}$)
Material:	ASTM F1554 Grade 36
Evaluation Service Report:	ESR-4868
Issued Valid:	11/1/2024 11/1/2026
Proof:	Design Method ACI 318-19 / Chem
Shear edge breakout verification:	Row closest to edge (Case 3 only from ACI 318-19 Fig. R.17.7.2.1b)
Stand-off installation:	$e_b = 0.000 \text{ in.}$ (no stand-off); $t = 0.250 \text{ in.}$
Anchor plate ^R :	$l_x \times l_y \times t = 4.000 \text{ in.} \times 4.000 \text{ in.} \times 0.250 \text{ in.}$; (Recommended plate thickness: not calculated)
Profile:	no profile
Base material:	cracked concrete, 2500, $f_c' = 2,500 \text{ psi}$; $h = 12.000 \text{ in.}$, Temp. short/long: 32/32 °F
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
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.10.5.3 (d)) Shear load: yes (17.10.6.3 (c))

^R - The anchor calculation is based on a rigid anchor plate assumption.

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





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Company:	Infinigy	Page:	3
Address:		Specifier:	MK
Phone Fax:		E-Mail:	
Design:	SE04823C_Generator Anchorage	Date:	4/14/2026
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [ft.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 435; V _x = 0; V _y = 282; M _x = 0.000; M _y = 0.000; M _z = 0.000;	yes	20

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Company:	Infinigy	Page:	4
Address:		Specifier:	MK
Phone Fax:		E-Mail:	
Design:	SE04823C_Generator Anchorage	Date:	4/14/2026
Fastening point:			

2 Proof I Utilization (Governing Cases)

Loading	Proof	Design values [lb]		Utilization	Status
		Load	Capacity	β_N / β_V [%]	
Tension	Bond Strength	435	2,280	20 / -	OK
Shear	Steel Strength	282	1,927	- / 15	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.191	0.146	5/3	11	OK

3 Warnings

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

Fastening meets the design criteria!



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Company:	Infinigy	Page:	5
Address:		Specifier:	MK
Phone Fax:		E-Mail:	
Design:	SE04823C_Generator Anchorage	Date:	4/14/2026
Fastening point:			

4 Remarks; Your Cooperation Duties

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