

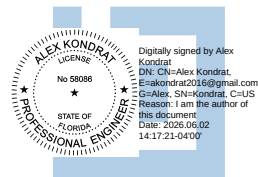
RATIONAL ANALYSIS

PROJECT
MILO RESIDENCE
11901 SW 63RD AVE
PINECREST, FLORIDA 33156

DATE 06-01-26
PAGES COVERED BY THIS SEAL 1-160



THIS ITEM HAS BEEN ELECTRONICALLY SIGNED
AND SEALED BY ALEX KONDRAT, PE 58086
USING A DIGITAL SIGNATURE ON THE DATE
INCLUDED WITHIN THE DIGITAL SIGNATURE STAMP.
PRINTED COPIES OF THIS DOCUMENT ARE NOT
CONSIDERED SIGNED AND SEALED AND THE
SIGNATURE MUST BE VERIFIED ON ANY
ELECTRONIC COPIES.



Digitally signed by Alex
Kondrat
DN: CN=Alex Kondrat,
E=akondrat2016@gmail.com,
G=Alex, SN=Kondrat, C=US
Reason: I am the author of
this document
Date: 2026.06.02
14:17:21-0400



ALEX KONDRAT & ASSOCIATES, INC.
9935 NW 29 STREET,
DORAL, FLORIDA, 33172
P.E.# 58086, CA# 9717

TABLE OF CONTENTS

DESCRIPTION	PAGE #
• DEVELOPMENT OF WIND LOADS PER ASCE 7-22	1-6
• ROOF DIAPHRAGM ANALYSIS.....	7-9
• WOOD TRUSS & GIRDER REACTIONS & CONNECTION DESIGN.....	10-24
• DESIGN OF MASONRY WALLS.....	25-30
• DESIGN OF WOOD LEDGER.....	31-32
• DESIGN OF CONCRETE ONE WAY SLABS 2 ND FLOOR SLAB.....	33-39
• DESIGN OF CONCRETE STAIRS.....	40-41
• DESIGN OF CONCRETE BEAMS.....	42-93
• DESIGN OF STEEL COLUMNS & BASE PLATES.....	94-107
• DESIGN OF SHALLOW FOUNDATION.....	108-160

DESIGN CODE

FLORIDA BUILDING CODE 2023 8TH EDITION

DESIGN SOFTWARE

ENERCALC

MECA WIND



ALEX KOND RAT & ASSOCIATES, INC.
9935 NW 29 STREET,
DORAL, FLORIDA, 33172
P.E.# 58086, CA# 9717

MecaWind v2545

Developed by Meca Enterprises Inc., <https://www.mecaenterprises.com>
www.mecaenterprises.com, Copyright © 2026

Calculations Prepared by:

Date: Jun 02, 2026

File Location: E:\AKA -PROJECT FILES\TONY SOSA\MILO RESIDENCE\CALCS\7-22\

MILO 7-22 REV 042125.wnd

General:

Reference Abbreviations: T: Table, F: Figure, E: Equation, S: Section, ¶: Paragraph

Wind Load Standard	=	ASCE 7-22	Basic Wind Speed	=	175.0 mph
Exposure Classification	=	C	Risk Category	=	II
Structure Type	=	Building	Basis for Wind Pressures	=	ASD
MWFRS Analysis Method	=	Ch 27	C&C Analysis Method	=	Ch 30 Pt 1
Dynamic Type of Structure	=	Rigid	Advanced Options	=	True
Simple Diaphragm Building	=	True	Base Reactions Output Type	=	None
Altitude above Sea Level	=	0.000 ft	Base Elevation Of Structure	=	0.0000 ft
MWFRS Pressure Elevations	=	Mean Ht	Topographic Effects	=	None
Override Directionality Factor	=	False	Override Gust Factor	=	False
Override Minimum Pressure	=	False			

Building:

Roof = Roof Type	=	Hipped	Encl = Enclosure Classification	=	Enclosed
Pitch = Pitch of Roof	=	4.0 :12	θ = Slope of Roof	=	18.43 °
W = Building Width	=	43.3300 ft	L = Building Length	=	60.0000 ft
R _{Ht} = Ridge Height	=	33.888 ft	E _{Ht} = Eave Height	=	26.000 ft
Custom = Custom dimensions for Hipped End	=	False	L _{hip} = Ridge Hipped Length	=	16.6700 ft
Pitch _{hip} = Hipped End Slope of Roof	=	4.000 :12	θ_{hip} = Hipped End Slope of Roof	=	18.43 °
OH = Overhang Configuration	=	All Soffit	Par = Parapet	=	None
z _i = Highest Opening Elevation	=	0.0000 ft	HT _{over} = Override Mean Roof Height	=	False
Ht _{man} = Mean Roof Height	=	29.944 ft	RA _{over} = Override Roof Area	=	False
GC _{pi_o} = Override GC _{pi} value	=	False	IsElev = Building is Elevated	=	False

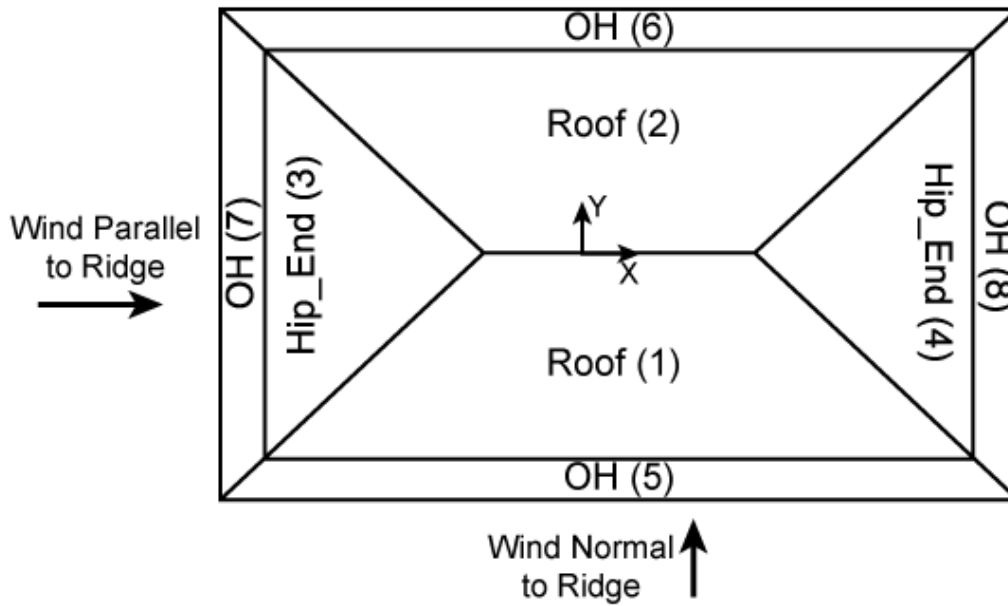
Exposure Constants T:26.11-1:

α = 3-s Gust-speed exponent	=	9.800	Z _g = Nominal Ht of Boundary Layer	=	2460.000 ft
$\hat{\alpha}$ = Reciprocal of α	=	0.102	b = 3 sec gust speed factor	=	1.000
α_m = Mean hourly Wind-Speed Exponent	=	0.156	b _m = Mean hourly Windspeed Exponent	=	0.660
c = Turbulence Intensity Factor	=	0.200	ϵ = Integral Length Scale Exponent	=	0.2000

Overhang Inputs:

Std	=	Overhangs on all sides are the same	=	True
OHType	=	Type of Roof Wall Intersections	=	Soffit
OH	=	Overhang of Roof Beyond Wall	=	2.000 ft

Main Wind Force Resisting System (MWFRS) Wind Calculations per Ch 27



h = Mean structure height	= 29.944 ft	$K_h = 2.41 \cdot (\text{Min}(Z, 15) / Z_g)^{2/\alpha_{T:26.10-1}}$	= 0.980
K_{zt} = No Topographic Feature	= 1.000	K_d = Directionality Factor $T:26.6-1$	= 0.85
GC_{pi} = $\pm$ Internal Press Coef $T:26.13-1$	= ± 0.18	LF = ASD Load Factor	= 0.60
K_e = Ground Elev Factor $T:26.10-1$	= 1.000	$q_h = .00256 \cdot K_h \cdot K_{zt} \cdot K_e \cdot V^2 \cdot LF_{E:26.10-1}$	= 46.10 psf
q_{in} = - Internal Press: q_h	= 46.10 psf	q_{ip} = For $+GC_{pi}$ use q_h	= 46.10 psf
A_{roof} = Roof Area	= 3,192.97 ft ²		

MWFRS Wind Loads [Normal to Ridge]

h = Mean Roof Height of Building	= 29.9442 ft	R_{ht} = Ridge Height Of Roof	= 33.8883 ft
B = Building Width Normal To Wind	= 60.0000 ft	L = Building Width Parallel To Wind	= 43.3300 ft
L/B = Ratio: L/B	= 0.722	h/L = Ratio: h/L	= 0.691
θ = Slope of Main Roof	= 18.43 °	θ_{hip} = Slope of Hipped Roof Ends	= 18.43 °
Cp_{WW} = Windward Wall Coefficient	= 0.800	Cp_{LW} = Leeward Wall Coefficient	= -0.500
Cp_{SW} = Side Wall Coefficient	= -0.700		

Gust Factor Calculation for Wind: [Normal to Ridge]

Gust Factor Category I Rigid Structures - Simplified Method

G_1 = Simplified: For Rigid Structures can use 0.85	= 0.85
---	--------

Gust Factor Category II Rigid Structures - Complete Analysis

Z_m = Equiv Struc Height: $\text{Max}(0.6 \cdot h, Z_{min})$	= 17.966 ft
I_{zm} = Turbulence Intensity: $c \cdot (33/Z_m)^{1/6}$ $E:26.11-7$	= 0.221
L_{zm} = Turbulence Integral Length Scale: $l \cdot (Z_m/33)^{E:26.11-9}$	= 442.751 ft
B = Building Width Width Normal to Wind Direction	= 60.000 ft
Q = $[1 / (1 + 0.63 \cdot [(B+h)/L_{zm}]^{0.63})]^{0.5}$ $E:26.11-8$	= 0.901
G_2 = Detailed: $0.925 \cdot [(1 + 1.7 \cdot g_q \cdot I_{zm} \cdot Q) / (1 + 1.7 \cdot g_v \cdot I_{zm})]$ $E:26.11-6$	= 0.874

Gust Factor Used in Analysis

G = Gust Factor: $\text{Min}(G_1, G_2)$	= 0.850
---	---------

Wall Wind Pressures [Normal to Ridge]

All wind pressures include a Load Factor (LF) of 0.6

Elev ft	GC_{pi}	q_i psf	K_z	K_{zt}	q_z psf	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
26.000	+0.18	46.10	0.952	1.000	44.79	18.84	-23.71	-30.37	42.55	9.60
26.000	-0.18	46.10	0.952	1.000	44.79	32.95	-9.60	-16.26	42.55	9.60

K_z	= $2.41 \cdot (\text{Min}(Z, 15) / Z_g)^{2/\alpha}$
GC_{pi}	= +Internal Coef $T:26.13-1$
q_{ip}	= For $+GC_{pi}$ use q_h
Side	= $q_h \cdot K_d \cdot G \cdot Cp_{SW} - q_{ip} \cdot K_d \cdot (GC_{pi+})$ $E:27.3-1$
Windward	= $q_z \cdot K_d \cdot G \cdot Cp_{WW} - q_{ip} \cdot K_d \cdot (GC_{pi+})$ $E:27.3-1$
+Press	= Pressure Acting Toward Surface
$§27.1.5$	= MWFRS Min Wall Pressure = 9.60 psf

K_{zt}	= No Topographic Feature
q_z	= $.00256 \cdot K_z \cdot K_{zt} \cdot K_e \cdot V^2 \cdot LF_{E:26.10-1}$
q_{in}	= - Internal Press: q_h
Leeward	= $q_h \cdot K_d \cdot G \cdot Cp_{LW} - q_{ip} \cdot K_d \cdot (GC_{pi+})$ $E:27.3-1$
Total	= Windward - Leeward
-Press	= Pressure Acting Away from Surface

Roof Wind Pressures [Normal to Ridge]
All wind pressures include a Load Factor (LF) of 0.6

Component	Description	Location	Start ft	End ft	θ °	Basis	GC _{pi}	C _{pMin}	C _{pMax}	P _{min} psf	P _{max} psf	P _{min} psf
Overhang	Leeward	6	All	All	18.43	N	+0.1800	-0.581	-0.581	-26.40	-26.40	4.80
Overhang	Overhang 0 to h/2	7,8	0.000	14.972	0.0	P	+0.1800	-0.954	-0.18	-38.82	-13.05	4.80
Overhang	Windward	5	All	All	18.43	N	+0.1800	-0.104	-0.609	-10.50	-27.33	4.80
Overhang	Overhang h/2 to h	7,8	14.972	29.944	0.0	P	+0.1800	-0.824	-0.18	-34.49	-13.05	4.80
Overhang	Overhang h to 2•h	7,8	29.944	47.330	0.0	P	+0.1800	-0.576	-0.18	-26.26	-13.05	4.80
Roof	Leeward	2	All	All	18.43	N	+0.1800	-0.581	-0.581	-26.40	-26.40	4.80
Roof	Windward	1	All	All	18.43	N	+0.1800	-0.104	-0.609	-10.50	-27.33	4.80
Roof	Roof 0 to h/2	3,4	2.000	14.972	0.0	P	+0.1800	-0.954	-0.18	-38.82	-13.05	4.80
Roof	Roof h/2 to h	3,4	14.972	29.944	0.0	P	+0.1800	-0.824	-0.18	-34.49	-13.05	4.80
Roof	Roof h to 2•h	3,4	29.944	45.330	0.0	P	+0.1800	-0.576	-0.18	-26.26	-13.05	4.80
Soffit	Bottom	5	All	All	0.0	N/A	+0.1800	0.8	0.8	19.59	19.59	4.80
Overhang	Leeward	6	All	All	18.43	N	-0.1800	-0.581	-0.581	-12.29	-12.29	4.80
Overhang	Overhang 0 to h/2	7,8	0.000	14.972	0.0	P	-0.1800	-0.954	-0.18	-24.71	1.06	4.80
Overhang	Windward	5	All	All	18.43	N	-0.1800	-0.104	-0.609	3.60	-13.22	4.80
Overhang	Overhang h/2 to h	7,8	14.972	29.944	0.0	P	-0.1800	-0.824	-0.18	-20.38	1.06	4.80
Overhang	Overhang h to 2•h	7,8	29.944	47.330	0.0	P	-0.1800	-0.576	-0.18	-12.15	1.06	4.80
Roof	Leeward	2	All	All	18.43	N	-0.1800	-0.581	-0.581	-12.29	-12.29	4.80
Roof	Windward	1	All	All	18.43	N	-0.1800	-0.104	-0.609	3.60	-13.22	4.80
Roof	Roof 0 to h/2	3,4	2.000	14.972	0.0	P	-0.1800	-0.954	-0.18	-24.71	1.06	4.80
Roof	Roof h/2 to h	3,4	14.972	29.944	0.0	P	-0.1800	-0.824	-0.18	-20.38	1.06	4.80
Roof	Roof h to 2•h	3,4	29.944	45.330	0.0	P	-0.1800	-0.576	-0.18	-12.15	1.06	4.80
Soffit	Bottom	5	All	All	0.0	N/A	-0.1800	0.8	0.8	33.70	33.70	4.80

Roof Pressures based upon ch 27:

Component = The building component for pressures

Start = Start Dist from Windward Edge

C_{pMin} = Smallest Coefficient Magnitude

P_{min} = $q_h \cdot K_d \cdot G \cdot C_{pMin} - q_{ip} \cdot K_d \cdot GC_{piE:27.3-1}$

GC_{pi} = +Internal Coef T:26.13-1

P_{min} = Min Press projected on vertical plane §27.1.5

§27.1.5 = MWFRS Min Wall Pressure = 9.60 psf

+Press = Pressure Acting Toward Surface

• The smaller uplift pressures due to C_{pMin} can become critical when wind is combined with roof live load or snow load; load combinations are given in ASCE 7

Location = Reference Graphic in Output for Values

End = End Dist from Windward Edge

C_{pMax} = Largest Coefficient Magnitude

P_{max} = $q_h \cdot K_d \cdot G \cdot C_{pMax} - q_{in} \cdot K_d \cdot GC_{piE:27.3-1}$

Basis = P=Parallel to Ridge: N=Normal to Ridge

θ = Roof Slope Relative to Wind

Reduction = Reduction Factor (.8) for h/L ≥ 1 & 10 ≤ θ ≤ 15°

-Press = Pressure Acting Away from Surface

MWFRS Wind Loads [Parallel to Ridge]

h = Mean Roof Height of Building = 29.9442 ft

B = Building Width Normal To Wind = 43.3300 ft

L/B = Ratio: L/B = 1.385

θ = Slope of Main Roof = 18.43 °

C_{pW} = Windward Wall Coefficient = 0.800

C_{pSW} = Side Wall Coefficient = -0.700

R_{ht} = Ridge Height Of Roof = 33.8883 ft

L = Building Width Parallel To Wind = 60.0000 ft

h/L = Ratio: h/L = 0.499

θ_{Hip} = Slope of Hipped Roof Ends = 18.43 °

C_{pLW} = Leeward Wall Coefficient = -0.423

Gust Factor Calculation for Wind: [Parallel to Ridge]

Gust Factor Category I Rigid Structures - Simplified Method

G₁ = Simplified: For Rigid Structures can use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Z_m = Equiv Struc Height: Max(0.6•h, Z_{min}) = 17.966 ft

I_{zm} = Turbulence Intensity: $c \cdot (33/Z_m)^{1/6}$ E:26.11-7 = 0.221

L_{zm} = Turbulence Integral Length Scale: $l \cdot (Z_m/33)^{E:26.11-9}$ = 442.751 ft

B = Building Width Width Normal to Wind Direction = 43.330 ft

Q = $[1/(1+0.63 \cdot [(B+h)/L_{zm}]^{0.63})]^{0.5}$ E:26.11-8 = 0.912

G₂ = Detailed: $0.925 \cdot [(1+1.7 \cdot g_q \cdot I_{zm} \cdot Q)/(1+1.7 \cdot g_v \cdot I_{zm})]$ E:26.11-6 = 0.879

Gust Factor Used in Analysis

G = Gust Factor: Min(G₁, G₂) = 0.850

Wall Wind Pressures [Parallel to Ridge]
All wind pressures include a Load Factor (LF) of 0.6

Elev ft	GC _{pi}	q _i psf	K _z	K _{zt}	q _z psf	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
33.888	+0.18	46.10	1.005	1.000	47.28	20.28	-21.15	-30.37	41.42	9.60
29.944	+0.18	46.10	0.980	1.000	46.10	19.59	-21.15	-30.37	40.74	9.60
26.000	+0.18	46.10	0.952	1.000	44.79	18.84	-21.15	-30.37	39.98	9.60

33.888	-0.18	46.10	1.005	1.000	47.28	34.38	-7.04	-16.26	41.42	9.60
29.944	-0.18	46.10	0.980	1.000	46.10	33.70	-7.04	-16.26	40.74	9.60
26.000	-0.18	46.10	0.952	1.000	44.79	32.95	-7.04	-16.26	39.98	9.60

$K_z = 2.41 \cdot (\text{Min}(Z, 15) / Z_g)^{2/\alpha}$
 $GC_{pi} = +\text{Internal Coef } T:26.13-1$
 $q_{ip} = \text{For } +GC_{pi} \text{ use } q_h$
 $\text{Side} = q_h \cdot K_d \cdot G \cdot C_{pSW} - q_{ip} \cdot K_d \cdot (GC_{pi+}) \quad E:27.3-1$
 $\text{Windward} = q_z \cdot K_d \cdot G \cdot C_{pWW} - q_{ip} \cdot K_d \cdot (GC_{pi+}) \quad E:27.3-1$
 $+Press = \text{Pressure Acting Toward Surface}$
 $\$27.1.5 = MWFRS \text{ Min Wall Pressure} = 9.60 \text{ psf}$

$K_{zt} = \text{No Topographic Feature}$
 $q_z = .00256 \cdot K_z \cdot K_{zt} \cdot K_a \cdot V^2 \cdot LF_{E:26.10-1}$
 $q_{in} = - \text{Internal Press: } q_h$
 $\text{Leeward} = q_h \cdot K_d \cdot G \cdot C_{pLW} - q_{ip} \cdot K_d \cdot (GC_{pi+}) \quad E:27.3-1$
 $\text{Total} = \text{Windward} - \text{Leeward}$
 $-Press = \text{Pressure Acting Away from Surface}$

Roof Wind Pressures [Parallel to Ridge]
All wind pressures include a Load Factor (LF) of 0.6

Component	Description	Location	Start ft	End ft	θ °	Basis	GC_{pi}	C_{pMin}	C_{pMax}	P_{min} psf	P_{max} psf	P_{min} psf
Overhang	Leeward	8	All	All	18.43	N	+0.1800	-0.569	-0.569	-26.00	-26.00	4.80
Overhang	Overhang 0 to h	5,6	0.000	29.944	0.0	P	+0.1800	-0.9	-0.18	-37.03	-13.05	4.80
Overhang	Windward	7	All	All	18.43	N	+0.1800	-0.056	-0.493	-8.91	-23.49	4.80
Overhang	Overhang h to 2•h	5,6	29.944	59.888	0.0	P	+0.1800	-0.5	-0.18	-23.71	-13.05	4.80
Overhang	Overhang $\geq 2 \cdot h$	5,6	59.888	64.000	0.0	P	+0.1800	-0.3	-0.18	-17.05	-13.05	4.80
Roof	Leeward	4	All	All	18.43	N	+0.1800	-0.569	-0.569	-26.00	-26.00	4.80
Roof	Windward	3	All	All	18.43	N	+0.1800	-0.056	-0.493	-8.91	-23.49	4.80
Roof	Roof 0 to h	1,2	2.000	29.944	0.0	P	+0.1800	-0.9	-0.18	-37.03	-13.05	4.80
Roof	Roof h to 2•h	1,2	29.944	59.888	0.0	P	+0.1800	-0.5	-0.18	-23.71	-13.05	4.80
Roof	Roof $\geq 2 \cdot h$	1,2	59.888	62.000	0.0	P	+0.1800	-0.3	-0.18	-17.05	-13.05	4.80
Soffit	Bottom	7	All	All	0.0	N/A	+0.1800	0.8	0.8	19.59	19.59	4.80
Overhang	Leeward	8	All	All	18.43	N	-0.1800	-0.569	-0.569	-11.89	-11.89	4.80
Overhang	Overhang 0 to h	5,6	0.000	29.944	0.0	P	-0.1800	-0.9	-0.18	-22.93	1.06	4.80
Overhang	Windward	7	All	All	18.43	N	-0.1800	-0.056	-0.493	5.20	-9.38	4.80
Overhang	Overhang h to 2•h	5,6	29.944	59.888	0.0	P	-0.1800	-0.5	-0.18	-9.60	1.06	4.80
Overhang	Overhang $\geq 2 \cdot h$	5,6	59.888	64.000	0.0	P	-0.1800	-0.3	-0.18	-2.94	1.06	4.80
Roof	Leeward	4	All	All	18.43	N	-0.1800	-0.569	-0.569	-11.89	-11.89	4.80
Roof	Windward	3	All	All	18.43	N	-0.1800	-0.056	-0.493	5.20	-9.38	4.80
Roof	Roof 0 to h	1,2	2.000	29.944	0.0	P	-0.1800	-0.9	-0.18	-22.93	1.06	4.80
Roof	Roof h to 2•h	1,2	29.944	59.888	0.0	P	-0.1800	-0.5	-0.18	-9.60	1.06	4.80
Roof	Roof $\geq 2 \cdot h$	1,2	59.888	62.000	0.0	P	-0.1800	-0.3	-0.18	-2.94	1.06	4.80
Soffit	Bottom	7	All	All	0.0	N/A	-0.1800	0.8	0.8	33.70	33.70	4.80

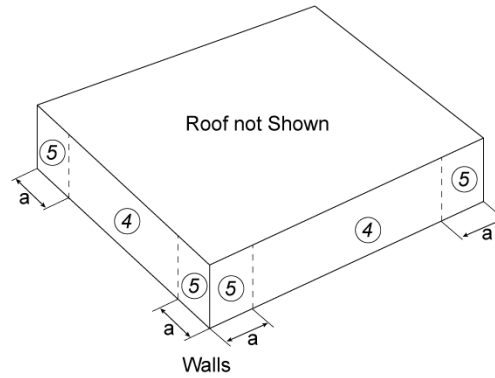
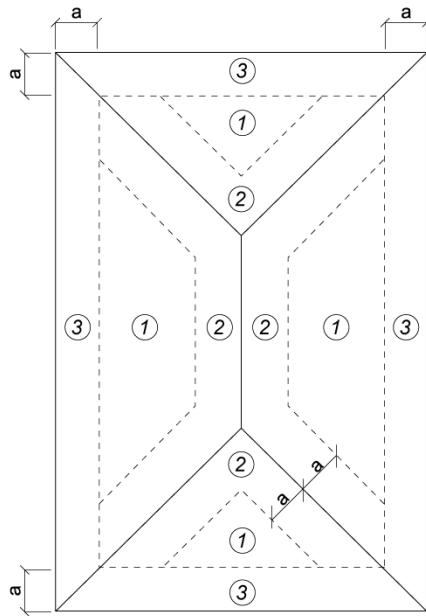
Roof Pressures based upon ch 27:

Component = The building component for pressures
Start = Start Dist from Windward Edge
 C_{pMin} = Smallest Coefficient Magnitude
 P_{min} = $q_h \cdot K_d \cdot G \cdot C_{pMin} - q_{ip} \cdot K_d \cdot GC_{piE:27.3-1}$
 GC_{pi} = +Internal Coef $T:26.13-1$
 P_{min} = Min Press projected on vertical plane $\$27.1.5$
 $\$27.1.5$ = MWFRS Min Wall Pressure = 9.60 psf
-Press = Pressure Acting Away from Surface

Location = Reference Graphic in Output for Values
End = End Dist from Windward Edge
 C_{pMax} = Largest Coefficient Magnitude
 P_{max} = $q_h \cdot K_d \cdot G \cdot C_{pMax} - q_{in} \cdot K_d \cdot GC_{piE:27.3-1}$
Basis = P=Parallel to Ridge: N=Normal to Ridge
 θ = Roof Slope Relative to Wind
+Press = Pressure Acting Toward Surface

• The smaller uplift pressures due to C_{pMin} can become critical when wind is combined with roof live load or snow load; load combinations are given in ASCE 7

Components and Cladding (C&C) Wind Loads per Ch 30 Pt 1 Roof & Wall



h = Mean structure height = 29.944 ft
 K_{zt} = No Topographic Feature = 1.000
 GC_{pi} = $\pm$ Internal Press Coef $T:26.13-1$ = ± 0.18
 K_e = Ground Elev Factor $T:26.10-1$ = 1.000
 θ = Slope of Roof = 18.43 °
 a = $\text{Max}(a_1, 0.04 \cdot B, 3 \text{ ft } [0.9 \text{ m}])$ = 4.333 ft

$K_h = 2.41 \cdot (\text{Min}(Z, 15) / Z_g)^{2/\alpha}$ = 0.980
 K_d = Directionality Factor $T:26.6-1$ = 0.85
 LF = ASD Load Factor = 0.60
 $q_h = .00256 \cdot K_h \cdot K_{zt} \cdot K_e \cdot V^2 \cdot LF_{E:26.10-1}$ = 46.10 psf
 $a_1 = \text{Min}(0.1 \cdot B, 0.4 \cdot h)$ = 4.333 ft

C&C Wind Roof & Wall Detailed per Ch 30 Pt 1
All wind pressures include a Load Factor (LF) of 0.6

Description	Zone	Width ft	Span ft	Area ft ²	1/3 Rule	Reference	a ft	GC_{pi}	GC_{pd}	GC_{pu}	P_{max} psf	P_{min} psf
MASONRY (11.83FT)	4	1.0000	11.8300	46.65	Yes	F:30.3-1	4.333	± 0.18	0.88	-0.98	41.61	-45.53
MASONRY (11.83FT)	5	1.0000	11.8300	46.65	Yes	F:30.3-1	4.333	± 0.18	0.88	-1.16	41.61	-52.66
MASONRY (10FT)	4	1.0000	10.0800	33.87	Yes	F:30.3-1	4.333	± 0.18	0.91	-1.01	42.58	-46.50
MASONRY (10FT)	5	1.0000	10.0800	33.87	Yes	F:30.3-1	4.333	± 0.18	0.91	-1.21	42.58	-54.59
TRUSS	1	2.0000	7.0000	16.33	Yes	F:30.3-2E	4.333	± 0.18	0.61	-1.64	31.15	-71.18
TRUSS	2	2.0000	7.0000	16.33	Yes	F:30.3-2E	4.333	± 0.18	0.61	-2.22	31.15	-94.05
TRUSS	3	2.0000	7.0000	16.33	Yes	F:30.3-2E	4.333	± 0.18	0.61	-2.40	31.15	-101.24
TRUSS	1	2.0000	23.0000	176.33	Yes	F:30.3-2E	4.333	± 0.18	0.30	-0.84	18.81	-40.05
TRUSS	2	2.0000	23.0000	176.33	Yes	F:30.3-2E	4.333	± 0.18	0.30	-1.35	18.81	-59.81
TRUSS	3	2.0000	23.0000	176.33	Yes	F:30.3-2E	4.333	± 0.18	0.30	-1.45	18.81	-63.90
TRUSS	1	2.0000	43.5000	630.75	Yes	F:30.3-2E	4.333	± 0.18	0.30	-0.80	18.81	-38.41
TRUSS	2	2.0000	43.5000	630.75	Yes	F:30.3-2E	4.333	± 0.18	0.30	-1.30	18.81	-58.00
TRUSS	3	2.0000	43.5000	630.75	Yes	F:30.3-2E	4.333	± 0.18	0.30	-1.40	18.81	-61.92
OPENINGS 10 SF	4	2.0000	5.0000	10.00	No	F:30.3-1	4.333	± 0.18	1.00	-1.10	46.24	-50.16
OPENINGS 10 SF	5	2.0000	5.0000	10.00	No	F:30.3-1	4.333	± 0.18	1.00	-1.40	46.24	-61.92
GARAGE OPENING	4	9.0000	9.0000	81.00	No	F:30.3-1	4.333	± 0.18	0.84	-0.94	39.96	-43.88
GARAGE OPENING	5	9.0000	9.0000	81.00	No	F:30.3-1	4.333	± 0.18	0.84	-1.08	39.96	-49.35
ROOFING 10 SF	1	2.0000	5.0000	10.00	No	F:30.3-2E	4.333	± 0.18	0.70	-1.80	34.49	-77.59
ROOFING 10 SF	2	2.0000	5.0000	10.00	No	F:30.3-2E	4.333	± 0.18	0.70	-2.40	34.49	-101.11
ROOFING 10 SF	3	2.0000	5.0000	10.00	No	F:30.3-2E	4.333	± 0.18	0.70	-2.60	34.49	-108.95

GC_{pd} = Down (+) External Coefficient
 P_{max} = $q_h \cdot K_d \cdot [GC_{pd} - GC_{pi}]$ $[E:30.3-1]$
 $+Press$ = Pressure Acting Toward Surface
 $\S 30.2.2$ = C&C Min Pressure = 9.60 psf
 $Width$ = Width of Component
 $Area$ = $Span \cdot Width$
 a = $\text{Max}[\text{Min}(.1 \cdot B, .4 \cdot h), .04 \cdot B, 3]$ $F:30.3-1$

GC_{pu} = Uplift (-) External Coefficient
 P_{min} = $q_h \cdot K_d \cdot [GC_{pu} - GC_{pi}]$ $[E:30.3-1]$
 $-Press$ = Pressure Acting Away from Surface
 $Zone$ = Applicable Zone per Figure
 $Span$ = Span of Component
 $1/3 \text{ Rule}$ = Width limited to $Span/3$
 a = $\text{Max}[\text{Min}(.1 \cdot B, .4 \cdot h), .04 \cdot B, 3]$ $F:30.3-2E$

GC_{pi} = Internal Coef $T_{26,13-1}$

Reference = Applicable Reference from Standard

C&C Wind Roof & Wall Summary per Ch 30 Pt 1 (Table 1 of 2)

All wind pressures include a Load Factor (LF) of 0.6

Zone	Reference	P_{max} A ≤ 10 ft ² psf	P_{min} A ≤ 10 ft ² psf	P_{max} A = 20 ft ² psf	P_{min} A = 20 ft ² psf	P_{max} A = 50 ft ² psf	P_{min} A = 50 ft ² psf
1	F:30.3-2E	34.49	-77.59	29.77	-68.53	23.53	-56.54
2	F:30.3-2E	34.49	-101.11	29.77	-91.13	23.53	-77.95
3	F:30.3-2E	34.49	-108.95	29.77	-98.06	23.53	-83.68
4	F:30.3-1	46.24	-50.16	44.16	-48.08	41.41	-45.33
5	F:30.3-1	46.24	-61.92	44.16	-57.75	41.41	-52.24

C&C Wind Roof & Wall Summary per Ch 30 Pt 1 (Table 2 of 2)

All wind pressures include a Load Factor (LF) of 0.6

Zone	Reference	P_{max} A = 100 ft ² psf	P_{min} A = 100 ft ² psf	P_{max} A = 200 ft ² psf	P_{min} A = 200 ft ² psf	P_{max} A > 500 ft ² psf	P_{min} A > 500 ft ² psf
1	F:30.3-2E	18.81	-47.47	18.81	-38.41	18.81	-38.41
2	F:30.3-2E	18.81	-67.97	18.81	-58.00	18.81	-58.00
3	F:30.3-2E	18.81	-72.80	18.81	-61.92	18.81	-61.92
4	F:30.3-1	39.32	-43.24	37.24	-41.16	34.49	-38.41
5	F:30.3-1	39.32	-48.08	37.24	-43.91	34.49	-38.41

 P_{max} = Maximum Pressure

Area = Span • Width

Span = Span of Component

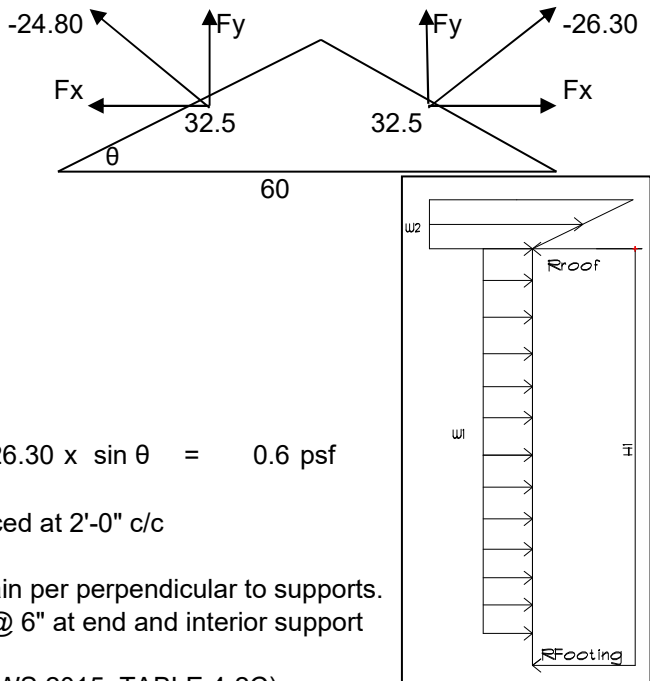
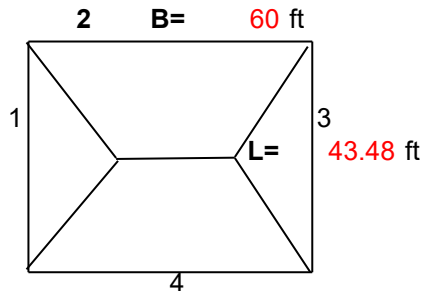
 $s_{30.2.2}$ = C&C Min Pressure = 9.60 psf P_{min} = Minimum Pressure

Width = Width of Component

Reference = Applicable Reference from Standard

Interpolate = Interpolate for Areas between columns

Project: MILO
 Subject: Roof Diaphragm
 Located: AREA 1
 WIND LOAS PER ASCE7-22 MWFRS



Slope $5/12$
 θ 23 degrees
 Windward Roof 24.80 psf
 Leeward Roof 26.30 psf
 Load on x component, F_x : $24.80 \times \sin \theta - 26.30 \times \sin \theta = 0.6$ psf
 $H1 = 10.08$ ft

ROOF ASSEMBLY: Prefabricated wood trusses spaced at 2'-0" c/c

DESIGN ROOF DIAPHRAGM

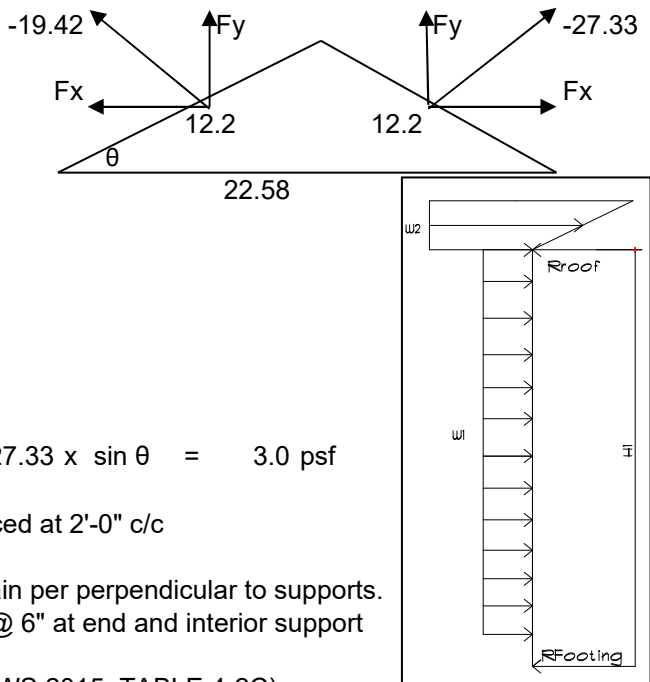
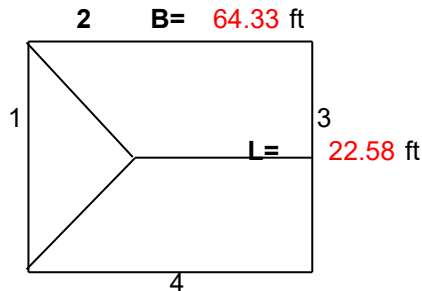
5/8" Exterior grade plywood sheathing laid w/face grain per perpendicular to supports.
 attached to wood roof trusses w/8d ring shank nails @ 6" at end and interior support
 and 8d RS nails at 6" c/c at perimeter and ridges

Shear capacity without blockir 335 plf (From SDPWS 2015, TABLE 4-2C)

Direction of Wind 1/3	Windward Wall	=	18.79	+	Leeward Wall	=	23.87	=	W1 =	42.66	psf
	W=	42.66 X	5.04	+	0.58 X	65.00	=	252.5	plf		
	Roof =	252.5 X	43.48 /	2	=	5.49	klps				
	Shear(2/4) Vt	=	5.49 /	60	=	91.49	plf				
Required Roof length to be blocked (2/4) = N/A ft (L/2-L Va / (2 VT))From each end											
Direction of Wind 2/4	Windward Wall	=	18.79	+	Leeward Wall	=	23.87	=	W1 =	42.66	psf
	W=	42.66 X	5.04	+	0.58 X	43.48	=	240.1	plf		
	Roof =	240.1 X	60 /	2	=	7.20	klps				
	Shear(1/3) Vt	=	7.20 /	43.48	=	165.7	plf				
Required Roof length to be blocked (1/3) = N/A ft (B/2-B Va / (2 VT))From each end											

E:\AKA -PROJECT FILES\TONY SOSAMILO RESIDENCE\CALCS\ROOF DIAPHRAGM\HIGH ROOF\REVISED 060226\Roof Diaphragm Analysis HIGH ROOF AREA 5.xlsx\one story

Project: MILO
 Subject: LOW Roof Diaphragm
 Located: AREA 6
 WIND LOAS PER ASCE7-22 MWFRS



Slope 5 / 12
 θ 23 degrees
 Windward Roof 19.42 psf
 Leeward Roof 27.33 psf
 Load on x component, Fx : 19.42 x sin θ - 27.33 x sin θ = 3.0 psf
 H1 = 11.50 ft

ROOF ASSEMBLY: Prefabricated wood trusses spaced at 2'-0" c/c

DESIGN ROOF DIAPHRAGM

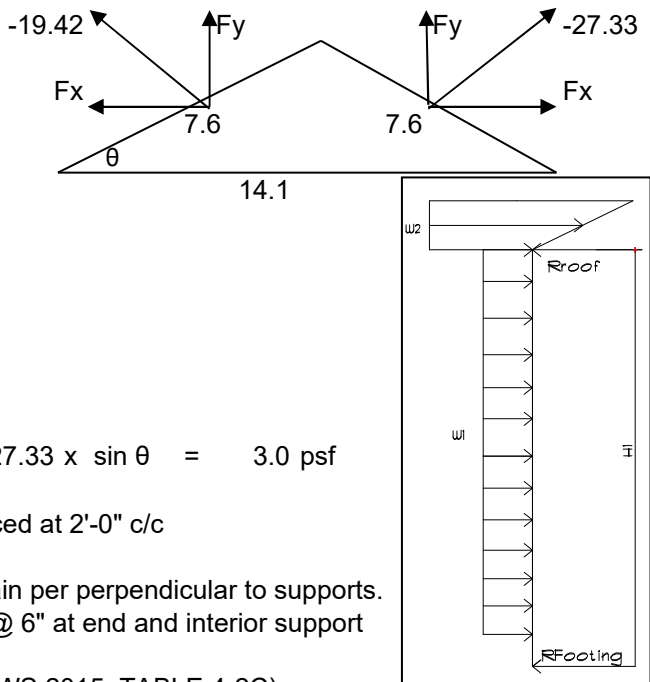
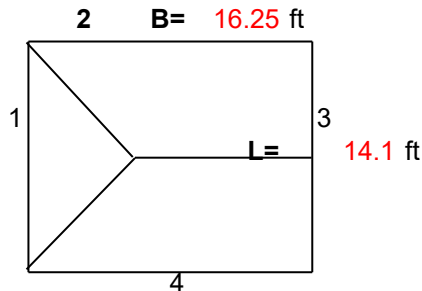
5/8" Exterior grade plywood sheathing laid w/face grain per perpendicular to supports.
 attached to wood roof trusses w/8d ring shank nails @ 6" at end and interior support
 and 8d RS nails at 6" c/c at perimeter and ridges

Shear capacity without blockir 335 plf (From SDPWS 2015, TABLE 4-2C)

Direction of Wind 1/3	Windward Wall	=	0.00	+	Leeward Wall	=	23.94	=	W1 = 23.94 psf
	W=		23.94	X	5.75	+	3.04	X	24.46 = 212.1 plf
	Roof =		212.1	X	22.58 / 2	=	2.39		kips
	Shear(2/4) Vt	=	2.39	/	64.33	=	37.22		plf
Required Roof length to be blocked (2/4) = N/A ft (L/2-L Va / (2 VT))From each end									
Direction of Wind 2/4	Windward Wall	=	0.00	+	Leeward Wall	=	23.94	=	W1 = 23.94 psf
	W=		23.94	X	5.75	+	3.04	X	24.46 = 212.1 plf
	Roof =		212.1	X	64.33 / 2	=	6.82		kips
	Shear(1/3) Vt	=	6.82	/	22.58	=	302.1		plf
Required Roof length to be blocked (1/3) = N/A ft (B/2-B Va / (2 VT))From each end									

F:\Projects 062821\TONY SOSA\MILO RESIDENCE\CALCS\ROOF DIAPHRAGM\LOW ROOF\Roof Diaphragm Analysis LOW ROOF AREA 6.xlsx]one story

Project: MILO
 Subject: LOW Roof Diaphragm
 Located: AREA 7
 WIND LOAS PER ASCE7-22 MWFRS



Slope 5 / 12
 θ 23 degrees
 Windward Roof 19.42 psf
 Leeward Roof 27.33 psf
 Load on x component, Fx : $19.42 \times \sin \theta - 27.33 \times \sin \theta = 3.0$ psf
 H1 = 11.50 ft

ROOF ASSEMBLY: Prefabricated wood trusses spaced at 2'-0" c/c

DESIGN ROOF DIAPHRAGM

5/8" Exterior grade plywood sheathing laid w/face grain per perpendicular to supports.
 attached to wood roof trusses w/8d ring shank nails @ 6" at end and interior support
 and 8d RS nails at 6" c/c at perimeter and ridges

Shear capacity without blockir 335 plf (From SDPWS 2015, TABLE 4-2C)

Direction of Wind 1/3	Windward Wall	=	0.00	+	Leeward Wall	=	23.94	=	W1 = 23.94 psf
	W=		23.94	X	5.75	+	3.04	X	15.28 = 184.1 plf
	Roof =		184.1	X	14.1 / 2	=	1.30		kips
	Shear(2/4) Vt	=	1.30	/	16.25	=	79.88		plf
Required Roof length to be blocked (2/4) = N/A ft (L/2-L Va / (2 VT))From each end									
Direction of Wind 2/4	Windward Wall	=	0.00	+	Leeward Wall	=	23.94	=	W1 = 23.94 psf
	W=		23.94	X	5.75	+	3.04	X	15.28 = 184.1 plf
	Roof =		184.1	X	16.25 / 2	=	1.50		kips
	Shear(1/3) Vt	=	1.50	/	14.1	=	106.1		plf
Required Roof length to be blocked (1/3) = N/A ft (B/2-B Va / (2 VT))From each end									

F:\Projects 062821\TONY SOSA\MILO RESIDENCE\CALCS\ROOF DIAPHRAGM\LOW ROOF\Roof Diaphragm Analysis LOW ROOF AREA 7.xlsx]one story

Calculations for Reactions of Roof Trusses Uplift & Gravity				
JACK TRUSSES 7'-0" SPAN				
Roof Net Uplift Pressures	ASCE 7-22			
CC PRESSURES-10PSF ROOF DL	Zone 1	61.67	PSF	
	Zone 2	84.7	PSF	
	Zone 3	91.94	PSF	
	Zone OH	139.16	PSF	
Roof Gravity Loads	Dead	25	PSF	
SLOPE > 2:12	Live	20	PSF	
	Total D+L	45	PSF	
INPUT				
Distance for a	5.57	Ft		
Slope	4	:12		
Truss Span	7.00	Ft	Horizontal truss span	
Over hang	2.00	Ft		
Truss spacing	2.00	Ft		
RESULTS				
Truss angle (theta)	18.43	DEG	Tan-1(slope)	
Truss height	1.17	Ft	Slope x Truss span/2	
Truss Length	7.38	Ft	Square Rt ((Truss span/2)**2 x (Truss height**2)) x 2	
Average uplift pressure	73.19	PSF	(Pressure Zone 1 + Pressure Zone 2)/2	
Reactions Uplift each end	1097	LB	(ZOH x OH x Truss Spacing) + (Average pressure x (Truss Length/2) x Truss spacing)	
Reactions Gravity each end	512	LB	(Total D+L x OH x Truss Spacing) + (Total D+L x (Truss Length/2) x Truss spacing)	

NU-VUE NVHTA16 (CONNECTOR #1)
(FL#16294)

ALLOWABLE UPLIFT = 2649 LBS
PARALLEL W/ WALL = 1575 LBS
PERPENDICULAR TO WALL = 2175 LBS

CHECK COMBINED LOADING

FROM DIAPHRAGM SHEAR CALCULATIONS

VL1 = 226 LBS/FT 452 LBS (SHEAR LOAD x TRUSS SPACING)
VL2 = OUT OF PLANE WALL SUCTION= WALL PRESSURE (PSF) x WALL HEIGHT/2 (FT) x 2'-0" (JOIST SPACING)

VL2 = 23.87 10 238.7 LBS
(FT)

<u>UPLIFT</u>	<u>VL1</u>	<u>VL2</u>	<u>≤ 1.0</u>	UNITY EQUATION
ALLOW UPLIFT	L1	L2		
(+)	(+)	(+)	0	
0.41	0.29	0.11	0.81	OK

Calculations for Reactions of Roof Trusses Uplift & Gravity				
TRUSSES 15'-6" SPAN (terrace)				
Roof Net Uplift Pressures	ASCE 7-22			
CC PRESSURES-10PSF ROOF DL	Zone 1	30.33	PSF	
	Zone 2	50.23	PSF	
	Zone 3	54.34	PSF	
	Zone OH	139.16	PSF	
Roof Gravity Loads	Dead	25	PSF	
SLOPE > 2:12	Live	20	PSF	
	Total D+L	45	PSF	
INPUT				
Distance for a	5.57	Ft		
Slope	3	:12		
Truss Span	15.50	Ft	Horizontal truss span	
Over hang	2.00	Ft		
Truss spacing	2.00	Ft		
RESULTS				
Truss angle (theta)	14.04	DEG	Tan-1(slope)	
Truss height	1.94	Ft	Slope x Truss span/2	
Truss Length	15.98	Ft	Square Rt ((Truss span/2)**2 x (Truss height**2)) x 2	
Average uplift pressure	40.28	PSF	(Pressure Zone 1 + Pressure Zone 2)/2	
Reactions Uplift each end	1200	LB	(ZOH x OH x Truss Spacing) + (Average pressure x (Truss Length/2) x Truss spacing)	
Reactions Gravity each end	899	LB	(Total D+L x OH x Truss Spacing) + (Total D+L x (Truss Length/2) x Truss spacing)	

NU-VUE NVHTA16 (CONNECTOR #1)

ALLOWABLE UPLIFT = 2649 LBS
PARALLEL W/ WALL = 1575 LBS
PERPENDICULAR TO WALL = 2175 LBS

CHECK COMBINED LOADING

FROM DIAPHRAGM SHEAR CALCULATIONS

VL1 = 70 LBS/FT 140 LBS (SHEAR LOAD x TRUSS SPACING)
VL2 = OUT OF PLANE WALL SUCTION= WALL PRESSURE (PSF) x WALL HEIGHT/2 (FT) x 2'-0" (JOIST SPACING)

VL2 = 23.87 11.83 282.38 LBS
(FT)

<u>UPLIFT</u>	<u>VL1</u>	<u>VL2</u>	<u>≤ 1.0</u>	UNITY EQUATION
ALLOW UPLIFT	L1	L2		
(+)	(+)	(+)	0	
0.45	0.09	0.13	0.67	OK

Calculations for Reactions of Roof Trusses Uplift & Gravity				
TRUSSES 23'-0" SPAN				
Roof Net Uplift Pressures	ASCE 7-22			
CC PRESSURES-10PSF ROOF DL	Zone 1	30.33	PSF	
	Zone 2	50.23	PSF	
	Zone 3	54.34	PSF	
	Zone OH	139.16	PSF	
Roof Gravity Loads	Dead	25	PSF	
SLOPE > 2:12	Live	20	PSF	
	Total D+L	45	PSF	
INPUT				
Distance for a	5.57	Ft		
Slope	3	:12		
Truss Span	23.00	Ft	Horizontal truss span	
Over hang	2.00	Ft		
Truss spacing	2.00	Ft		
RESULTS				
Truss angle (theta)	14.04	DEG	Tan-1(slope)	
Truss height	2.88	Ft	Slope x Truss span/2	
Truss Length	23.71	Ft	Square Rt ((Truss span/2)**2 x (Truss height**2)) x 2	
Average uplift pressure	40.28	PSF	(Pressure Zone 1 + Pressure Zone 2)/2	
Reactions Uplift each end	1512	LB	(ZOH x OH x Truss Spacing) + (Average pressure x (Truss Length/2) x Truss spacing)	
Reactions Gravity each end	1247	LB	(Total D+L x OH x Truss Spacing) + (Total D+L x (Truss Length/2) x Truss spacing)	

NU-VUE NVHTA16 (CONNECTOR #1)

ALLOWABLE UPLIFT = 2649 LBS
PARALLEL W/ WALL = 1575 LBS
PERPENDICULAR TO WALL = 2175 LBS

CHECK COMBINED LOADING

FROM DIAPHRAGM SHEAR CALCULATIONS

VL1 = 70 LBS/FT 140 LBS (SHEAR LOAD x TRUSS SPACING)
VL2 = OUT OF PLANE WALL SUCTION= WALL PRESSURE (PSF) x WALL HEIGHT/2 (FT) x 2'-0" (JOIST SPACING)

VL2 = 23.87 11.83 282.38 LBS
(FT)

<u>UPLIFT</u>	<u>VL1</u>	<u>VL2</u>	<u>≤ 1.0</u>	UNITY EQUATION
ALLOW UPLIFT	L1	L2		
(+)	(+)	(+)	0	
0.57	0.09	0.13	0.79	OK

Calculations for Reactions of Roof Trusses Uplift & Gravity				
TRUSSES 31'-8" SPAN (garage)				
Roof Net Uplift Pressures	ASCE 7-22			
CC PRESSURES-10PSF ROOF DL	Zone 1	30.33	PSF	
	Zone 2	50.23	PSF	
	Zone 3	54.34	PSF	
	Zone OH	139.16	PSF	
Roof Gravity Loads	Dead	25	PSF	
SLOPE > 2:12	Live	20	PSF	
	Total D+L	45	PSF	
INPUT				
Distance for a	5.57	Ft		
Slope	3	:12		
Truss Span	31.67	Ft	Horizontal truss span	
Over hang	2.00	Ft		
Truss spacing	2.00	Ft		
RESULTS				
Truss angle (theta)	14.04	DEG	Tan-1(slope)	
Truss height	3.96	Ft	Slope x Truss span/2	
Truss Length	32.64	Ft	Square Rt ((Truss span/2)**2 x (Truss height**2)) x 2	
Average uplift pressure	40.28	PSF	(Pressure Zone 1 + Pressure Zone 2)/2	
Reactions Uplift each end	1872	LB	(ZOH x OH x Truss Spacing) + (Average pressure x (Truss Length/2) x Truss spacing)	
Reactions Gravity each end	1649	LB	(Total D+L x OH x Truss Spacing) + (Total D+L x (Truss Length/2) x Truss spacing)	

NU-VUE NVHTA16 (CONNECTOR #1)

ALLOWABLE UPLIFT = 2649 LBS
PARALLEL W/ WALL = 1575 LBS
PERPENDICULAR TO WALL = 2175 LBS

CHECK COMBINED LOADING

FROM DIAPHRAGM SHEAR CALCULATIONS

VL1 = 70 LBS/FT 140 LBS (SHEAR LOAD x TRUSS SPACING)
VL2 = OUT OF PLANE WALL SUCTION= WALL PRESSURE (PSF) x WALL HEIGHT/2 (FT) x 2'-0" (JOIST SPACING)

VL2 = 23.87 11.83 282.38 LBS
(FT)

<u>UPLIFT</u>	<u>VL1</u>	<u>VL2</u>	<u>≤ 1.0</u>	UNITY EQUATION
ALLOW UPLIFT	L1	L2		
(+)	(+)	(+)	0	
0.71	0.09	0.13	0.93	OK

Calculations for Reactions of Roof Trusses Uplift & Gravity				
TRUSSES 43'-5" SPAN				
Roof Net Uplift Pressures	ASCE 7-22			
CC PRESSURES-10PSF ROOF DL	Zone 1	28.67	PSF	
	Zone 2	48.40	PSF	
	Zone 3	52.35	PSF	
	Zone OH	139.16	PSF	
Roof Gravity Loads	Dead	25	PSF	
SLOPE > 2:12	Live	20	PSF	
	Total D+L	45	PSF	
INPUT				
Distance for a	5.57	Ft		
Slope	4	:12		
Truss Span	43.50	Ft	Horizontal truss span	
Over hang	2.00	Ft		
Truss spacing	2.00	Ft		
RESULTS				
Truss angle (theta)	18.43	DEG	Tan-1(slope)	
Truss height	7.25	Ft	Slope x Truss span/2	
Truss Length	45.85	Ft	Square Rt ((Truss span/2)**2 x (Truss height**2)) x 2	
Average uplift pressure	38.54	PSF	(Pressure Zone 1 + Pressure Zone 2)/2	
Reactions Uplift each end	2324	LB	(ZOH x OH x Truss Spacing) + (Average pressure x (Truss Length/2) x Truss spacing)	
Reactions Gravity each end	2243	LB	(Total D+L x OH x Truss Spacing) + (Total D+L x (Truss Length/2) x Truss spacing)	

NU-VUE NVHTA16H (CONNECTOR #2)

ALLOWABLE UPLIFT = 3117 LBS
PARALLEL W/ WALL = 1575 LBS
PERPENDICULAR TO WALL = 2175 LBS

CHECK COMBINED LOADING

FROM DIAPHRAGM SHEAR CALCULATIONS

VL1 = 70 LBS/FT 140 LBS (SHEAR LOAD x TRUSS SPACING)
VL2 = OUT OF PLANE WALL SUCTION= WALL PRESSURE (PSF) x WALL HEIGHT/2 (FT) x 2'-0" (JOIST SPACING)

VL2 = 23.87 10 238.7 LBS
(FT)

<u>UPLIFT</u>	<u>VL1</u>	<u>VL2</u>	<u>≤ 1.0</u>	UNITY EQUATION
ALLOW UPLIFT	L1	L2		
(+)	(+)	(+)	0	
0.75	0.09	0.11	0.94	OK

8'-8" GIRDER TRUSS HIGH ROOF (LOADED W/ 43FT TRUSSES)			
Roof Net Uplift Pressures		ASCE 7-22	
CC PRESSURES-10PSF ROOF DL	Zone 1	28.67	PSF
	Zone 2	48.40	PSF
	Zone 3	52.35	PSF
	Zone 2H	139.16	
Roof Gravity Loads	Dead	25	PSF
	Live	20	PSF
	Total D+L	45	PSF
INPUT			
Distance for a		5.90	Ft
Slope		4	:12
Truss Span loading girder		43.50	Ft
Truss spacing loading girder		2.00	Ft
Girder Over Hang		0.00	Ft
Girder Truss Span		8.67	Ft

Horizontal truss span

RESULTS			
Truss angle (theta)	18.43	DEG	Tan-1(slope)
Truss height	7.25	Ft	Slope x Truss span/2
Truss Length	45.85	Ft	Square Rt (((Truss span/2)**2 x (Truss height**2)) x 2
Average uplift pressure	38.54	PSF	(Pressure Zone 1 + Pressure Zone 2)/2
Uniform Uplift load	922	LB/FT	Average pressure x ((Truss Length/2) + (Truss spacing/2))
Uniform Gravity Load	1077	LB/FT	Total D+L x ((Truss Length/2) + (Truss spacing/2))
Reaction Uplift Each End	3997	LB	Uniform uplift x (Girder truss span/2 + Girder OH)
Reaction Gravity Each End	4667	LB	Uniform gravity x (Girder truss span/2 + Girder OH)

14'-6" GIRDER TRUSS HIGH ROOF (LOADED W/ 43FT TRUSSES)			
Roof Net Uplift Pressures		ASCE 7-22	
CC PRESSURES-10PSF ROOF DL	Zone 1	28.67	PSF
	Zone 2	48.40	PSF
	Zone 3	52.35	PSF
	Zone 2H	139.16	
Roof Gravity Loads	Dead	25	PSF
	Live	20	PSF
	Total D+L	45	PSF
INPUT			
Distance for a		5.90	Ft
Slope		4	:12
Truss Span loading girder		43.50	Ft
Truss spacing loading girder		2.00	Ft
Girder Over Hang		0.00	Ft
Girder Truss Span		14.50	Ft

Horizontal truss span

RESULTS			
Truss angle (theta)	18.43	DEG	Tan-1(slope)
Truss height	7.25	Ft	Slope x Truss span/2
Truss Length	45.85	Ft	Square Rt (((Truss span/2)**2 x (Truss height**2)) x 2
Average uplift pressure	38.54	PSF	(Pressure Zone 1 + Pressure Zone 2)/2
Uniform Uplift load	922	LB/FT	Average pressure x ((Truss Length/2) + (Truss spacing/2))
Uniform Gravity Load	1077	LB/FT	Total D+L x ((Truss Length/2) + (Truss spacing/2))
Reaction Uplift Each End	6685	LB	Uniform uplift x (Girder truss span/2 + Girder OH)
Reaction Gravity Each End	7806	LB	Uniform gravity x (Girder truss span/2 + Girder OH)

23'-" GIRDER TRUSS TERRACE (LOADED W/ 7FT JACKS)			
Roof Net Uplift Pressures		ASCE 7-22	
CC PRESSURES-10PSF ROOF DL	Zone 1	28.67	PSF
	Zone 2	48.40	PSF
	Zone 3	52.35	PSF
	Zone 2H	139.16	
Roof Gravity Loads	Dead	25	PSF
	Live	20	PSF
	Total D+L	45	PSF
INPUT			
Distance for a		5.90	Ft
Slope		5	:12
Truss Span loading girder		7.00	Ft
Truss spacing loading girder		2.00	Ft
Girder Over Hang		2.00	Ft
Girder Truss Span		23.00	Ft

Horizontal truss span

RESULTS			
Truss angle (theta)	22.62	DEG	Tan-1(slope)
Truss height	1.46	Ft	Slope x Truss span/2
Truss Length	7.58	Ft	Square Rt (((Truss span/2)**2 x (Truss height**2)) x 2
Average uplift pressure	38.54	PSF	(Pressure Zone 1 + Pressure Zone 2)/2
Uniform Uplift load	185	LB/FT	Average pressure x ((Truss Length/2) + (Truss spacing/2))
Uniform Gravity Load	216	LB/FT	Total D+L x ((Truss Length/2) + (Truss spacing/2))
Reaction Uplift Each End	2493	LB	Uniform uplift x (Girder truss span/2 + Girder OH)
Reaction Gravity Each End	2911	LB	Uniform gravity x (Girder truss span/2 + Girder OH)

31'-2" GIRDER TRUSS GARAGE (LOADED W/ 7FT JACKS)			
Roof Net Uplift Pressures		ASCE 7-22	
CC PRESSURES-10PSF ROOF DL	Zone 1	28.67	PSF
	Zone 2	48.40	PSF
	Zone 3	52.35	PSF
	Zone 2H	139.16	
Roof Gravity Loads	Dead	25	PSF
	Live	20	PSF
	Total D+L	45	PSF
INPUT			
Distance for a		5.90	Ft
Slope		5	:12
Truss Span loading girder		7.00	Ft
Truss spacing loading girder		2.00	Ft
Girder Over Hang		2.00	Ft
Girder Truss Span		31.20	Ft

Horizontal truss span

RESULTS			
Truss angle (theta)	22.62	DEG	Tan-1(slope)
Truss height	1.46	Ft	Slope x Truss span/2
Truss Length	7.58	Ft	Square Rt $((\text{Truss span}/2)^2 + (\text{Truss height})^2) \times 2$
Average uplift pressure	38.54	PSF	$(\text{Pressure Zone 1} + \text{Pressure Zone 2})/2$
Uniform Uplift load	185	LB/FT	Average pressure x $((\text{Truss Length}/2) + (\text{Truss spacing}/2))$
Uniform Gravity Load	216	LB/FT	Total D+L x $((\text{Truss Length}/2) + (\text{Truss spacing}/2))$
Reaction Uplift Each End	3250	LB	Uniform uplift x (Girder truss span/2 + Girder OH)
Reaction Gravity Each End	3795	LB	Uniform gravity x (Girder truss span/2 + Girder OH)

43'-5" GIRDER TRUSS HIGH ROOF (LOADED W/ 7FT JACKS)			
Roof Net Uplift Pressures	ASCE 7-22		
CC PRESSURES-10PSF ROOF DL	Zone 1	28.67	PSF
	Zone 2	48.40	PSF
	Zone 3	52.35	PSF
	Zone 2H	139.16	
Roof Gravity Loads	Dead	25	PSF
	Live	20	PSF
	Total D+L	45	PSF
INPUT			
Distance for a	5.90	Ft	
Slope	5	:12	
Truss Span loading girder	7.00	Ft	Horizontal truss span
Truss spacing loading girder	2.00	Ft	
Girder Over Hang	2.00	Ft	
Girder Truss Span	43.50	Ft	

RESULTS			
Truss angle (theta)	22.62	DEG	Tan-1(slope)
Truss height	1.46	Ft	Slope x Truss span/2
Truss Length	7.58	Ft	Square Rt (((Truss span/2)**2 x (Truss height**2)) x 2
Average uplift pressure	38.54	PSF	(Pressure Zone 1 + Pressure Zone 2)/2
Uniform Uplift load	185	LB/FT	Average pressure x ((Truss Length/2) + (Truss spacing/2))
Uniform Gravity Load	216	LB/FT	Total D+L x ((Truss Length/2) + (Truss spacing/2))
Reaction Uplift Each End	4385	LB	Uniform uplift x (Girder truss span/2 + Girder OH)
Reaction Gravity Each End	5121	LB	Uniform gravity x (Girder truss span/2 + Girder OH)

Masonry Slender Wall

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: MASONRY 10'-1" SPAN**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : TMS 402-16

Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General InformationConstruction Type : **Grouted Hollow Concrete Masonry**

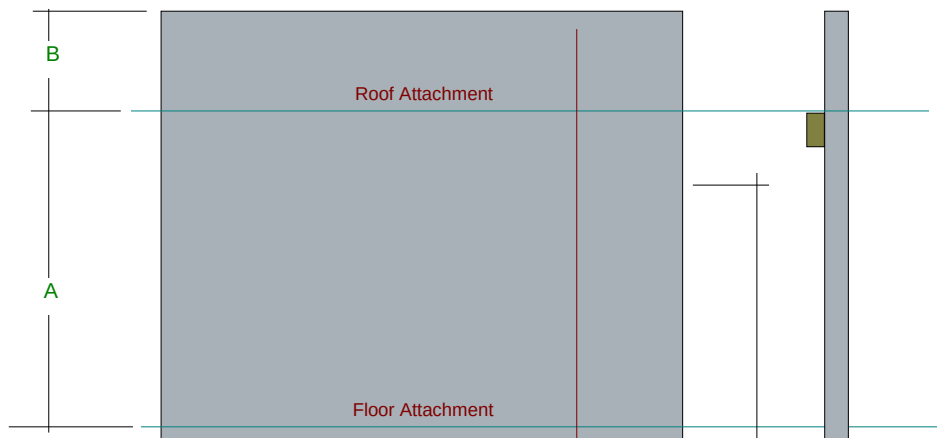
F'm	=	2.0 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in	Min Allow Out-of-plane Defl R _a	=	240.0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	3.750 in			
Em = f'm * 900	=	1,800,000 psi	Lower Level Rebar . . .		Minimum Vertical Steel %	=	0.0020
n	=	16.11	Bar Size #	5	Max % of ρ _{bal.}	=	0.008741
Grout Density	=	140 pcf	Bar Spacing	40 in			
Block Weight	Normal Weight						
Wall Weight	=	48.0 psf					

Wall is grouted at rebar cells only

One-Story Wall Dimensions

A Clear Height	=	10.1 ft
B Parapet height	=	ft

Wall Support Condition Top & Bottom Pinned

**Vertical Loads**Vertical Uniform Loads . . . (Applied per foot of Strip Width)

Ledger Load	Eccentricity	in	DL : Dead	Lr : Roof Live	Lf : Floor Live	S : Snow	W : Wind
Concentric Load			0.6	0.48			k/ft k/ft

Lateral Loads

Wind Loads :

Full area WIND load 52.0 psf

Seismic Loads :

Wall Weight Seismic Load Input Method : Direct entry of Lateral Wall Weight
Seismic Wall Lateral Load psf

Fp 1.0 = 0.0 psf

Masonry Slender Wall

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: MASONRY 10'-1" SPAN**DESIGN SUMMARY****Results reported for "Strip Width" of 12.0 in**

Governing Load Combination . . .		Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check +0.90D+W	Maximum Bending Stress Ratio 0.3802			
		Max Mu	0.6692 k-ft	Phi * Mn	1.760 k-ft
PASS	Service Deflection Check W Only	Actual Defl. Ratio L/	820	Allowable Defl. Ratio	240.0
		Max. Deflection	0.1479 in	Max. Allow. Defl.	0.5050 in
PASS	Axial Load Check +1.20D+0.50Lr+W	Max Pu / Ag	29.651 psi	Pu Max	k
		Max Pu Location	4.882 ft	Ag	in2
PASS	Reinforcing Limit Check			0.2 * f'm	400.0 psi
		Actual ρ	0.0020	Max Allow ρ	0.008944
Maximum Reactions <i>for Load Combination...</i>					
	Top Horizontal	W Only			262.60 k
	Base Horizontal	W Only			262.60 k
	Vertical Reaction	+D+Lr			1.565 k

Design Maximum Combinations - Moments**Results reported for "Strip Width" = 12 in.**

Load Combination	Axial Load		Mcr k-ft	Mu k-ft	Moment Values			ρ Actual	ρ Max Allow	Bar 'd'
	Pu k	0.2*f'm*b*t k			Phi	Phi Mn k-ft	As in ²			
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
+1.20D+1.60Lr+0.50W at 4.71 to 5.05	1.798	17.136	0.45	0.33	0.90	2.03	0.093	0.0020	0.0083	3.75
+1.20D+0.50W at 4.71 to 5.05	1.030	17.136	0.45	0.33	0.90	1.83	0.093	0.0020	0.0086	3.75
+1.20D+0.50Lr+W at 4.71 to 5.05	1.270	17.136	0.45	0.67	0.90	1.89	0.093	0.0020	0.0085	3.75
+1.20D+W at 4.71 to 5.05	1.030	17.136	0.45	0.67	0.90	1.83	0.093	0.0020	0.0086	3.75
+0.90D+W at 4.71 to 5.05	0.773	17.136	0.45	0.67	0.90	1.76	0.093	0.0020	0.0087	3.75
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00

Design Maximum Combinations - Deflections**Results reported for "Strip Width" = 12 in.**

Load Combination	Axial Load Pu k	Moment Values		I gross in ⁴	Stiffness		Deflections	
		Mcr k-ft	Mactual k-ft		I cracked in ⁴	I effective in ⁴	Deflection in	Defl. Ratio
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+D+0.60W at 4.71 to 5.05	0.859	0.45	0.40	335.60	18.21	335.600	0.012	10,024.0
+D+0.750Lr+0.450W at 4.71 to 5.05	1.219	0.45	0.30	335.60	19.05	335.600	0.009	13,353.4
+D+0.450W at 4.71 to 5.05	0.859	0.45	0.30	335.60	18.21	335.600	0.009	13,365.3
+0.60D+0.60W at 4.71 to 5.05	0.515	0.45	0.40	335.60	17.40	335.600	0.012	10,032.3
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+0.60W at 5.05 to 5.39	0.000	0.45	0.40	335.60	16.16	335.600	0.012	10,044.8
+0.420W at 5.05 to 5.39	0.000	0.45	0.28	335.60	16.16	335.600	0.008	14,349.7
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
W Only at 5.05 to 5.39	0.000	0.45	0.66	335.60	16.16	18.006	0.148	819.6
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Masonry Slender Wall

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: MASONRY 10'-1" SPAN**Reactions - Vertical & Horizontal**

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
D Only	0.0 k	0.00 k	1.085 k

Reactions - Vertical & Horizontal

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
+D+Lr	0.0 k	0.00 k	1.565 k
+D+0.750Lr	0.0 k	0.00 k	1.445 k
+D+0.60W	0.2 k	0.16 k	1.085 k
+D+0.750Lr+0.450W	0.1 k	0.12 k	1.445 k
+D+0.450W	0.1 k	0.12 k	1.085 k
+0.60D+0.60W	0.2 k	0.16 k	0.651 k
+D+0.70E	0.0 k	0.00 k	1.085 k
+D+0.5250E	0.0 k	0.00 k	1.085 k
+0.60D+0.70E	0.0 k	0.00 k	0.651 k
Lr Only	0.0 k	0.00 k	0.480 k
W Only	0.3 k	0.26 k	0.000 k
E Only	0.0 k	0.00 k	0.000 k

Masonry Slender Wall

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05 ALEX KONDRAT & ASSOCIATES INC (c) ENERCALC, LLC 1982-2026

DESCRIPTION: MASONRY 11'-10" SPAN

Code References

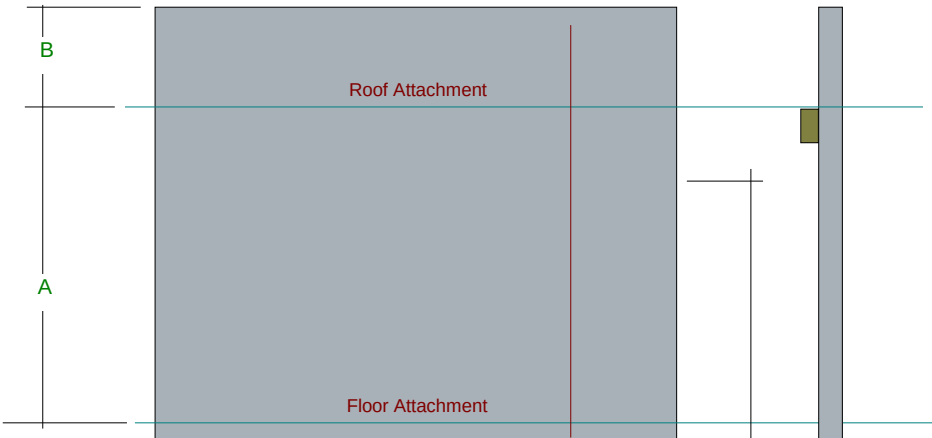
Governing Code : IBC 2018, CBC 2019
Referenced Design Standard(s) : TMS 402-16
Load Combinations Used : ASCE 7-22 / IBC 2024
Rho (or Omega) = 1.00

General Information

Construction Type : Grouted Hollow Concrete Masonry				
F'm	=	2.0 ksi	Nom. Wall Thickness	8 in
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in
Fr - Rupture	=	61.0 psi	Rebar "d" distance	3.750 in
Em = f'm * 900	=	1,800,000 psi	Lower Level Rebar . . .	
n	=	16.11	Bar Size #	5
Grout Density	=	140 pcf	Bar Spacing	24 in
Block Weight	Normal Weight		Temp Diff across thickness	= deg F
Wall Weight	=	55.0 psf	Min Allow Out-of-plane Defl R _a	= 240.0
Wall is grouted at rebar cells only			Minimum Vertical Steel %	= 0.0020
			Max % of ρ _{bal.}	= 0.008545

One-Story Wall Dimensions

A	Clear Height	=	11.830 ft
B	Parapet height	=	ft
Wall Support ConditionTop & Bottom Pinned			



Vertical Loads

Vertical Uniform Loads . . . (Applied per foot of Strip Width)		DL : Dead	Lr : Roof Live	Lf : Floor Live	S : Snow	W : Wind
Ledger Load	Eccentricity in	1.50	0.380			k/ft
Concentric Load						k/ft

Lateral Loads

Wind Loads :		Seismic Loads :	
Full area WIND load	52.66 psf	Wall Weight Seismic Load Input Method :Direct entry of Lateral Wall Weight	
		Seismic Wall Lateral Load	
		psf	
		Fp	1.0 = 0.0 psf

Masonry Slender Wall

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: MASONRY 11'-10" SPAN**DESIGN SUMMARY****Results reported for "Strip Width" of 12.0 in**

Governing Load Combination . . .		Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check +0.90D+W	Maximum Bending Stress Ratio 0.3244			
		Max Mu	0.9534 k-ft	Phi * Mn	2.939 k-ft
PASS	Service Deflection Check W Only	Actual Defl. Ratio L/	482	Allowable Defl. Ratio	240.0
		Max. Deflection	0.2946 in	Max. Allow. Defl.	0.5915 in
PASS	Axial Load Check +1.20D+0.50Lr+W	Max Pu / Ag	46.854 psi	Pu Max	k
		Max Pu Location	5.718 ft	Ag	in2
PASS	Reinforcing Limit Check			0.2 * f'm	400.0 psi
		Actual ρ	0.003333	Max Allow ρ	0.008944
Maximum Reactions for Load Combination...					
		Top Horizontal	W Only		311.484 k
		Base Horizontal	W Only		311.484 k
		Vertical Reaction	+D+Lr		2.531 k

Design Maximum Combinations - Moments**Results reported for "Strip Width" = 12 in.**

Load Combination	Axial Load		Mcr k-ft	Mu k-ft	Moment Values			ρ Actual	ρ Max Allow	Bar 'd'
	Pu k	0.2*f'm*b*t k			Phi	Phi Mn k-ft	As in^2			
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
+1.20D+1.60Lr+0.50W at 5.52 to 5.92	2.824	20.544	0.47	0.46	0.90	3.22	0.155	0.0033	0.0080	3.75
+1.20D+0.50W at 5.52 to 5.92	2.216	20.544	0.47	0.46	0.90	3.08	0.155	0.0033	0.0082	3.75
+1.20D+0.50Lr+W at 5.52 to 5.92	2.406	20.544	0.47	0.97	0.90	3.12	0.155	0.0033	0.0082	3.75
+1.20D+W at 5.52 to 5.92	2.216	20.544	0.47	0.96	0.90	3.08	0.155	0.0033	0.0082	3.75
+0.90D+W at 5.52 to 5.92	1.662	20.544	0.47	0.95	0.90	2.94	0.155	0.0033	0.0084	3.75
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00

Design Maximum Combinations - Deflections**Results reported for "Strip Width" = 12 in.**

Load Combination	Axial Load Pu k	Moment Values		I gross in^4	Stiffness		Deflections	
		Mcr k-ft	Mactual k-ft		I cracked in^4	I effective in^4	Deflection in	Defl. Ratio
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+D+0.60W at 5.92 to 6.31	1.825	0.47	0.56	353.60	28.26	37.679	0.054	2,644.7
+D+0.750Lr+0.450W at 5.52 to 5.92	2.132	0.47	0.42	353.60	28.87	353.600	0.016	8,612.9
+D+0.450W at 5.52 to 5.92	1.847	0.47	0.42	353.60	28.31	353.600	0.016	8,620.9
+0.60D+0.60W at 5.92 to 6.31	1.095	0.47	0.56	353.60	26.80	36.127	0.054	2,635.7
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+0.60W at 5.92 to 6.31	0.000	0.47	0.55	353.60	24.55	33.683	0.054	2,617.1
+0.420W at 5.92 to 6.31	0.000	0.47	0.39	353.60	24.55	353.600	0.015	9,291.1
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
W Only at 5.92 to 6.31	0.000	0.47	0.92	353.60	24.55	25.474	0.295	481.8
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Masonry Slender Wall

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: MASONRY 11'-10" SPAN**Reactions - Vertical & Horizontal**

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
D Only	0.0 k	0.00 k	2.151 k

Reactions - Vertical & Horizontal

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
+D+Lr	0.0 k	0.00 k	2.531 k
+D+0.750Lr	0.0 k	0.00 k	2.436 k
+D+0.60W	0.2 k	0.19 k	2.151 k
+D+0.750Lr+0.450W	0.1 k	0.14 k	2.436 k
+D+0.450W	0.1 k	0.14 k	2.151 k
+0.60D+0.60W	0.2 k	0.19 k	1.290 k
+D+0.70E	0.0 k	0.00 k	2.151 k
+D+0.5250E	0.0 k	0.00 k	2.151 k
+0.60D+0.70E	0.0 k	0.00 k	1.290 k
Lr Only	0.0 k	0.00 k	0.380 k
W Only	0.3 k	0.31 k	0.000 k
E Only	0.0 k	0.00 k	0.000 k

Wood Ledger

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: (2) 2X8 PT WOOD LEDGER (CRITICAL LOADING)

Code References

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : NDS 2018

Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General Information

Ledger Width	3.0 in	Design Method: ASD (using Service Load Combinations
Ledger Depth	7.250 in	Wood Stress Grade :Southern Pine, No.2: 2"-4" Thick: 8" Wi
Ledger Wood Specie	Southern Pine	Fb Allow 925.0 psi
G : Specific Gravity	0.55	Fv Allow 175.0 psi
Bolt Diameter	3/4" in	Fyb : Bolt Bending Yield 45,000 psi
Bolt Spacing	12.0 in	Concrete as Main Supporting Member
Cm - Wet Service Factor	1.0	Using 6" anchor embedment length in equations.
Ct - Temperature Factor	1.0	Using dowel bearing strength fixed at 7,500 psi per NDS Table 11E
Cg - Group Action Factor	1.0	
CA - Geometry Factor	1.0	

D(292.0) Lr(233.0)



Analytical model uses 50 spans to ensure that all possible combinations of bolt location and load location are evaluated.
Final results are an envelope solution.

	Dead	Roof Live	Floor Live	Snow	Wind	Seismic	Earth
Uniform Load...	292.0 plf	233.0 plf	plf	plf	plf	plf	plf
Point Load...	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Spacing	in						
Offset	in						
Horizontal Shear	plf	plf	plf	plf	215.0 plf	plf	plf

Wood Ledger

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: (2) 2X8 PT WOOD LEDGER (CRITICAL LOADING)**DESIGN SUMMARY****Design OK****Maximum Ledger Bending**

Load Combination . . . 0.0

Moment 0.0 ft-lb

fb : Actual Stress 0.0 psi

Fb : Allowable Stress 0.0 psi

Stress Ratio 0.0 :1

Maximum Bolt Bearing Summary

Load Combination . . . 0.0

Max. Vertical Load 0.0 lbs

Bolt Allow Vertical Load 0.0 lbs

Max. Horizontal Load 0.0 lbs

Bolt Allow Horizontal Load 0.0 lbs

Dowel Bearing Strengths

(for specific gravity & bolt diameter)

Ledger, Perp to Grain 7,500.0 psi

Ledger, Parallel to Grain 7,500.0 psi

Supporting Member, Perp to Grain 2,950.0 psi

Supporting Member, Parallel to Grain 6,150.0 psi

Maximum Ledger Shear

Load Combination . . . 0.0

Shear 0.0 lbs

fv : Actual Stress 0.0 psi

Fv : Allowable Stress 0.0 psi

Stress Ratio 0.0 :1

Angle of Resultant 0.0 deg

Diagonal Component 0.0 lbs

Allow Diagonal Bolt Force 0.0 lbs

Stress Ratio, Wood @ Bolt 0.0 :1

Allowable Bolt CapacityNote ! Refer to NDS Section 11.3 for Bolt Capacity calculation method.**Governing Load Combination**

Resultant Load Angle : $\theta =$ deg $K\theta =$ $F_e \theta =$

Bolt Capacity - Load Perpendicular to Grain

Fem	0.0	Fes	0.0	Fyb	0.0
Re	0.0	Rt	0.0		
k1	0.0	k2	0.0	k3	0.0
Im : Eq 11.3-1	Rd = 0.0	Z = 0.0 lbs			
Is : Eq 11.3-2	Rd = 0.0	Z = 0.0 lbs			
II : Eq 11.3-3	Rd = 0.0	Z = 0.0 lbs			
IIIIm : Eq 11.3-4	Rd = 0.0	Z = 0.0 lbs			
IIIIs : Eq 11.3-5	Rd = 0.0	Z = 0.0 lbs			
IV : Eq 11.3-6	Rd = 0.0	Z = 0.0 lbs			
min : Basic Design Value =		0.0 lbs			

Bolt Capacity - Load Parallel to Grain

Fem	0.0	Fes	0.0	Fyb	0.0
Re	0.0	Rt	0.0		
k1	0.0	k2	0.0	k3	0.0
Im : Eq 11.3-1	Rd = 0.0	Z = 0.0 lbs			
Is : Eq 11.3-2	Rd = 0.0	Z = 0.0 lbs			
II : Eq 11.3-3	Rd = 0.0	Z = 0.0 lbs			
IIIIm : Eq 11.3-4	Rd = 0.0	Z = 0.0 lbs			
IIIIs : Eq 11.3-5	Rd = 0.0	Z = 0.0 lbs			
IV : Eq 11.3-6	Rd = 0.0	Z = 0.0 lbs			
Zmin : Basic Design Value =		0.0 lbs			

Reference design value - Perpendicular to Grain :

$$Z' = Z * CD * CM * Ct * Cg * CA = 0.0 \text{ lbs}$$

Reference design value - Parallel to Grain :

$$Z' = Z * CD * CM * Ct * Cg * CA = 0.0 \text{ lbs}$$

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" ONE WAY SLAB 2ND FLOOR (2 SPANS) OVER FAMILY RM/KITCHEN**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

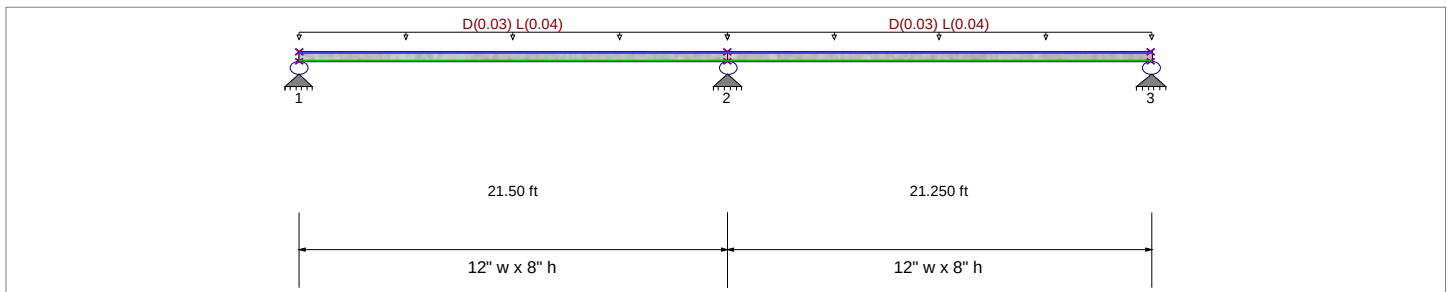
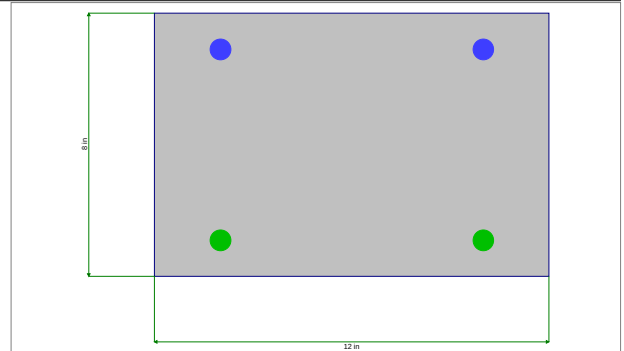
Load Combination Set : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2
Seismic Design Category	=	A			

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 8.0 in

Span #1 Reinforcing....

2-#5 at 1.10 in from Top, from 0.0 to 21.50 ft in this span

2-#5 at 1.10 in from Bottom, from 0.0 to 21.50 ft in this :

Span #2 Reinforcing....

2-#5 at 1.10 in from Top, from 0.0 to 21.250 ft in this span

2-#5 at 1.10 in from Bottom, from 0.0 to 21.250 ft in this

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.030, L = 0.040 ksf, Tributary Width = 1.0 ft, (2ND FL)

Load for Span Number 2

Uniform Load : D = 0.030, L = 0.040 ksf, Tributary Width = 1.0 ft, (2ND FL)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.702 : 1
Section used for this span		Typical Section
Mu : Applied		-12.337 k-ft
ϕ Mn : Allowable		17.566 k-ft
Location of maximum on span		0.000 ft
Span # where maximum occurs		Span # 2

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.01377 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
0.620 in^2 >= 0.473 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.051 in	Ratio =	5086	>=360.0	L Only
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0	L Only
Max Downward Total Deflection	0.477 in	Ratio =	541	>=240.0	Span: 2 : +D+L
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	Span: 2 : +D+L

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" ONE WAY SLAB 2ND FLOOR (2 SPANS) OVER FAMILY RM/KITCHEN**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	1.376	4.400	1.350
Max Upward from Load Combinations	1.376	4.400	1.350
Max Upward from Load Cases	1.061	3.313	1.041
D Only	1.061	3.313	1.041
+D+L	1.376	4.400	1.350
+D+0.750L	1.297	4.128	1.273
+0.60D	0.635	1.992	0.623
L Only	0.324	1.069	0.317

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	1.061		0.324				
Support #2	3.313		1.069				
Support #3	1.041		0.317				

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	21.500	-12.08	17.57	0.69
Span # 2	2	21.250	-12.34	17.57	0.70
+1.40D					
Span # 1	1	21.500	-9.92	17.57	0.56
Span # 2	2	21.250	-10.13	17.57	0.58
+1.20D+1.60L					
Span # 1	1	21.500	-12.08	17.57	0.69
Span # 2	2	21.250	-12.34	17.57	0.70
+1.20D+L					
Span # 1	1	21.500	-10.74	17.57	0.61
Span # 2	2	21.250	-10.97	17.57	0.62
+1.20D					
Span # 1	1	21.500	-8.50	17.57	0.48
Span # 2	2	21.250	-8.68	17.57	0.49
+0.90D					
Span # 1	1	21.500	-6.38	17.57	0.36
Span # 2	2	21.250	-6.51	17.57	0.37

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location in (ft)
1	+D+L	0.4768	8.907		0.0000	0.000
2	+D+L	0.4298	12.446		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" ONE WAY SLAB 2ND FLOOR (3 SPANS) OVER GREAT RM**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

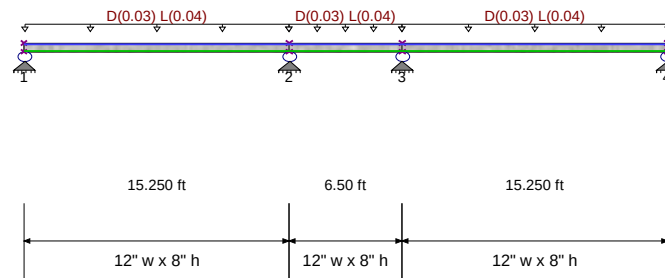
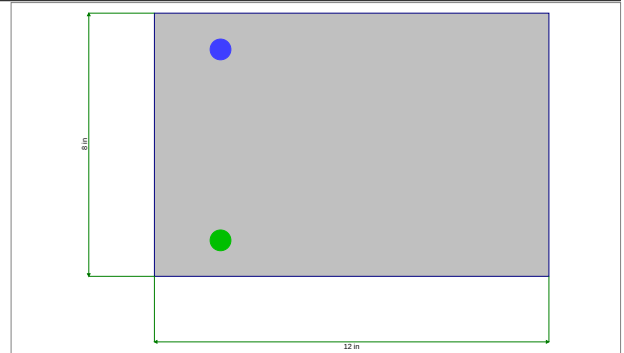
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 8.0 in

Span #1 Reinforcing....

1-#5 at 1.10 in from Top, from 0.0 to 15.250 ft in this span

1-#5 at 1.10 in from Bottom, from 0.0 to 15.250 ft in this span

Span #2 Reinforcing....

1-#5 at 1.10 in from Top, from 0.0 to 6.50 ft in this span

1-#5 at 1.10 in from Bottom, from 0.0 to 6.50 ft in this span

Span #3 Reinforcing....

1-#5 at 1.10 in from Top, from 0.0 to 15.250 ft in this span

1-#5 at 1.10 in from Bottom, from 0.0 to 15.250 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.030, L = 0.040 ksf, Tributary Width = 1.0 ft, (2ND FL)

Load for Span Number 2

Uniform Load : D = 0.030, L = 0.040 ksf, Tributary Width = 1.0 ft, (2ND FL)

Load for Span Number 3

Uniform Load : D = 0.030, L = 0.040 ksf, Tributary Width = 1.0 ft, (2ND FL)

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" ONE WAY SLAB 2ND FLOOR (3 SPANS) OVER GREAT RM**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =		0.468 : 1	Design Limits	
Section used for this span		Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied		4.385 k-ft	0.01923 in / in >=	0.00507 in / in OK
φ Mn : Allowable		9.363 k-ft	As Provided >= As,min	(Section 9.6.1.2)
Location of maximum on span		8.845 ft	0.310 in^2 >=	0.224 in^2 OK
Span # where maximum occurs		Span # 3		
Maximum Deflection				
Max Downward Transient Deflection	0.019 in	Ratio = 9857	>=360.0 L Only	
Max Upward Transient Deflection	-0.003 in	Ratio = 23261	>=360.0 L Only	
Max Downward Total Deflection	0.108 in	Ratio = 1698	>=240.0 Span: 3 : +D+L	
Max Upward Total Deflection	-0.017 in	Ratio = 4667	>=240.0 Span: 3 : +D+L	

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	1.032	2.051	2.051	1.032
Max Upward from Load Combinations	1.032	2.051	2.051	1.032
Max Upward from Load Cases	0.807	1.536	1.536	0.807
D Only	0.807	1.536	1.536	0.807
+D+L	1.032	2.051	2.051	1.032
+D+0.750L	0.983	1.915	1.915	0.983
+0.60D	0.484	0.922	0.922	0.484
L Only	0.255	0.485	0.485	0.255

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	0.807		0.255				
Support #2		1.536	0.485				
Support #3		1.536	0.485				
Support #4		0.807	0.255				

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	15.250	4.39	9.36	0.47
Span # 2	2	6.500	-4.13	9.36	0.44
Span # 3	3	15.250	4.39	9.36	0.47
+1.40D					
Span # 1	1	15.250	3.60	9.36	0.38
Span # 2	2	6.500	-3.39	9.36	0.36
Span # 3	3	15.250	3.60	9.36	0.38
+1.20D+1.60L					
Span # 1	1	15.250	4.39	9.36	0.47
Span # 2	2	6.500	-4.13	9.36	0.44
Span # 3	3	15.250	4.39	9.36	0.47
+1.20D+L					
Span # 1	1	15.250	3.90	9.36	0.42
Span # 2	2	6.500	-3.67	9.36	0.39
Span # 3	3	15.250	3.90	9.36	0.42
+1.20D					
Span # 1	1	15.250	3.09	9.36	0.33
Span # 2	2	6.500	-2.90	9.36	0.31
Span # 3	3	15.250	3.09	9.36	0.33
+0.90D					
Span # 1	1	15.250	2.31	9.36	0.25
Span # 2	2	6.500	-2.18	9.36	0.23
Span # 3	3	15.250	2.31	9.36	0.25

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" ONE WAY SLAB 2ND FLOOR (3 SPANS) OVER GREAT RM**Overall Maximum Deflections**

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+L	0.1077	7.015	+D+L	-0.0014	15.380
2	+D+L	0.0038	6.805	+D+L	-0.0167	3.250
3	+D+L	0.1077	8.235		0.0000	3.250

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" ONE WAY SLAB 2ND FLOOR BY ENTRY/LIBRARY/STUDY (3 SPAN)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

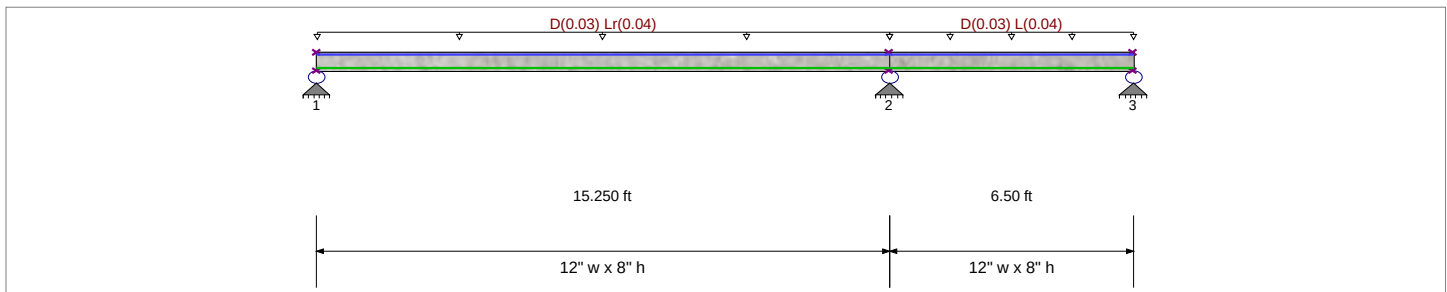
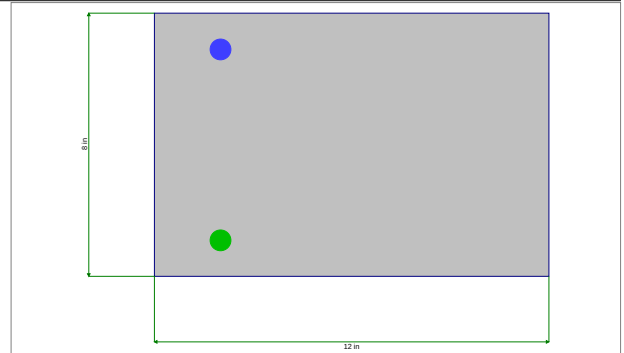
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 8.0 in

Span #1 Reinforcing....

1-#5 at 1.10 in from Top, from 0.0 to 15.250 ft in this span

1-#5 at 1.10 in from Bottom, from 0.0 to 15.250 ft in this span

Span #2 Reinforcing....

1-#5 at 1.10 in from Top, from 0.0 to 6.50 ft in this span

1-#5 at 1.10 in from Bottom, from 0.0 to 6.50 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.030, Lr = 0.040 ksf, Tributary Width = 1.0 ft, (2ND FL)

Load for Span Number 2

Uniform Load : D = 0.030, L = 0.040 ksf, Tributary Width = 1.0 ft, (2ND FL)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.503 : 1
Section used for this span		Typical Section
Mu : Applied		-4.706 k-ft
ϕ Mn : Allowable		9.363 k-ft
Location of maximum on span		0.000 ft
Span # where maximum occurs		Span # 2

Design Limits

Tensile Strain >= Min Strain Limit	(Section 9.3.3.1)
0.01923 in / in >= 0.00507 in / in	OK
As Provided >= As,min	(Section 9.6.1.2)
0.310 in^2 >= 0.240 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.018 in	Ratio = 10284	>=360.0	Lr Only
Max Upward Transient Deflection	-0.002 in	Ratio = 32692	>=360.0	L Only
Max Downward Total Deflection	0.093 in	Ratio = 1960	>=240.0	
Max Upward Total Deflection	-0.008 in	Ratio = 10327	>=240.0	Span: 2 : +D+Lr

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" ONE WAY SLAB 2ND FLOOR BY ENTRY/LIBRARY/STUDY (3 SPAN)**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	1.041	2.453	0.120
Max Upward from Load Combinations	1.041	2.453	0.104
Max Upward from Load Cases	0.783	1.988	0.120
Max Downward from all Load Conditions (Resisting Uplift)	-0.004		-0.129
Max Downward from Load Combinations (Resisting Uplift)			-0.129
Max Downward from Load Cases (Resisting Uplift)	-0.004		-0.125
D Only	0.783	1.988	-0.016
+D+L	0.779	2.132	0.104
+D+Lr	1.041	2.453	-0.129
+D+0.750Lr+0.750L	0.981	2.417	0.009
+D+0.750L	0.780	2.096	0.074
+0.60D	0.470	1.193	-0.010
Lr Only	0.252	0.484	-0.125
L Only	-0.004	0.144	0.120

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	0.783	0.252	-0.004				
Support #2	1.988	0.484	0.144				
Support #3	-0.016	-0.125	0.120				

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXIMUM BENDING Envelope					
Span # 1	1	15.250	-4.58	9.36	0.49
Span # 2	2	6.500	-4.71	9.36	0.50
+1.40D					
Span # 1	1	15.250	-3.79	9.36	0.41
Span # 2	2	6.500	-3.89	9.36	0.42
+1.20D+0.50Lr+1.60L					
Span # 1	1	15.250	-3.75	9.36	0.40
Span # 2	2	6.500	-3.85	9.36	0.41
+1.20D+1.60L					
Span # 1	1	15.250	-3.35	9.36	0.36
Span # 2	2	6.500	-3.44	9.36	0.37
+1.20D+1.60Lr+L					
Span # 1	1	15.250	-4.58	9.36	0.49
Span # 2	2	6.500	-4.71	9.36	0.50
+1.20D+1.60Lr					
Span # 1	1	15.250	-4.52	9.36	0.48
Span # 2	2	6.500	-4.64	9.36	0.50
+1.20D+L					
Span # 1	1	15.250	-3.32	9.36	0.35
Span # 2	2	6.500	-3.40	9.36	0.36
+1.20D					
Span # 1	1	15.250	-3.25	9.36	0.35
Span # 2	2	6.500	-3.34	9.36	0.36
+1.20D+0.50Lr+L					
Span # 1	1	15.250	-3.71	9.36	0.40
Span # 2	2	6.500	-3.81	9.36	0.41
+0.90D					
Span # 1	1	15.250	-2.44	9.36	0.26
Span # 2	2	6.500	-2.50	9.36	0.27

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.0934	6.754	+D+Lr	-0.0007	15.343
2		0.0000	6.754	+D+Lr	-0.0076	2.507

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" CONCRETE STAIRS (3 EQ SPANS 15 FT)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

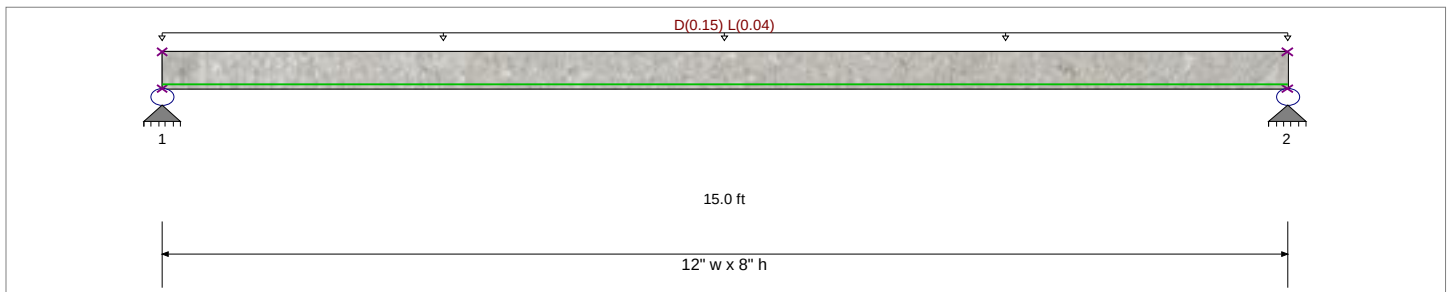
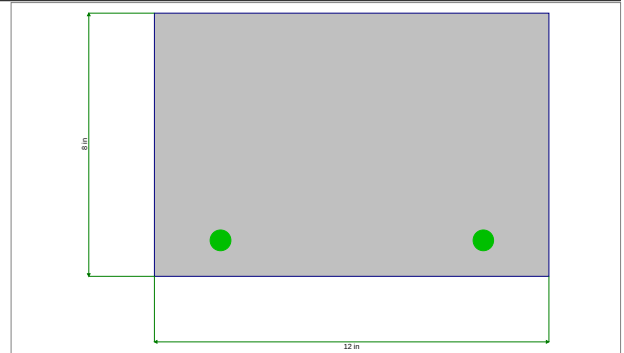
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 8.0 in

Span #1 Reinforcing....

2-#5 at 1.10 in from Bottom, from 0.0 to 15.0 ft in this span

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.150, L = 0.040 ksf, Tributary Width = 1.0 ft, (STAIRS)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.577	: 1
Section used for this span		Typical Section	
Mu : Applied		10.125	k-ft
ϕ Mn : Allowable		17.555	k-ft
Location of maximum on span		7.514	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.01146 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
0.620 in^2 >= 0.388 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.028 in	Ratio =	6316	>=360.0	L Only
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0	L Only
Max Downward Total Deflection	0.535 in	Ratio =	336	>=240.0	Span: 1 : +D+L
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	Span: 1 : +D+L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.150	2.150
Max Upward from Load Combinations	2.150	2.150
Max Upward from Load Cases	1.850	1.850
D Only	1.850	1.850

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 8" CONCRETE STAIRS (3 EQ SPANS 15 FT)**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+D+L	2.150	2.150
+D+0.750L	2.075	2.075
+0.60D	1.110	1.110
L Only	0.300	0.300

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	1.850		0.300				
Support #2	1.850		0.300				

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	15.000	10.12	17.56	0.58
+1.40D					
Span # 1	1	15.000	9.71	17.56	0.55
+1.20D+1.60L					
Span # 1	1	15.000	10.12	17.56	0.58
+1.20D+L					
Span # 1	1	15.000	9.45	17.56	0.54
+1.20D					
Span # 1	1	15.000	8.32	17.56	0.47
+0.90D					
Span # 1	1	15.000	6.24	17.56	0.36

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+L	0.5349	7.500		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-1**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

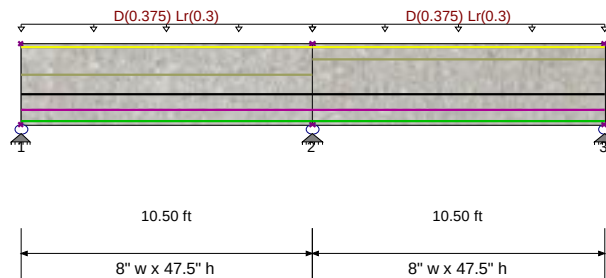
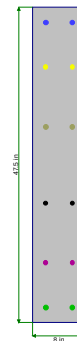
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 47.50 in

Span #1 Reinforcing....

- 2-#6 at 2.30 in from Top, from 0.0 to 10.50 ft in this span
- 2-#5 at 9.0 in from Bottom, from 0.0 to 10.50 ft in this span
- 2-#5 at 9.0 in from Top, from 0.0 to 10.50 ft in this span

Span #2 Reinforcing....

- 2-#6 at 2.30 in from Top, from 0.0 to 10.50 ft in this span
- 2-#5 at 9.0 in from Bottom, from 0.0 to 10.50 ft in this span
- 2-#5 at 18.0 in from Top, from 0.0 to 10.50 ft in this span

- 2-#6 at 2.30 in from Bottom, from 0.0 to 10.50 ft in this :
- 2-#5 at 18.0 in from Bottom, from 0.0 to 10.50 ft in this :
- 2-#6 at 18.0 in from Top, from 0.0 to 10.50 ft in this spa

- 2-#6 at 2.30 in from Bottom, from 0.0 to 10.50 ft in this :
- 2-#5 at 18.0 in from Bottom, from 0.0 to 10.50 ft in this :
- 2-#5 at 9.0 in from Top, from 0.0 to 10.50 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 15.0 ft, (LOW ROOF)

Load for Span Number 2

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 15.0 ft, (LOW ROOF)

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-1**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =		0.049 : 1	Design Limits	
Section used for this span		Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied		-19.144 k-ft	0.01411 in / in >=	0.00507 in / in OK
φ Mn : Allowable		389.211 k-ft	As Provided >= As,min	(Section 9.6.1.2)
Location of maximum on span		0.000 ft	2.740 in^2 >=	0.149 in^2 OK
Span # where maximum occurs		Span # 2		
Maximum Deflection				
Max Downward Transient Deflection	0.000 in	Ratio =	0 <360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0	Lr Only
Max Downward Total Deflection	0.000 in	Ratio =	0 <240.0	Span: 2 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0	Span: 2 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	4.164	13.882	4.164
Max Upward from Load Combinations	4.164	13.882	4.164
Max Upward from Load Cases	2.983	9.944	2.983
D Only	2.983	9.944	2.983
+D+Lr	4.164	13.882	4.164
+D+0.750Lr	3.869	12.897	3.869
+0.60D	1.790	5.966	1.790
Lr Only	1.181	3.937	1.181

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	2.983	1.181					
Support #2	9.944	3.937					
Support #3	2.983	1.181					

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination		Location (ft)	Bending Stress Results (k-ft)		
Segment	Span #	along Beam	Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	10.500	-18.76	415.32	0.05
Span # 2	2	10.500	-19.14	389.21	0.05
+1.40D					
Span # 1	1	10.500	-14.32	415.32	0.03
Span # 2	2	10.500	-14.62	389.21	0.04
+1.20D+0.50Lr					
Span # 1	1	10.500	-14.30	415.32	0.03
Span # 2	2	10.500	-14.60	389.21	0.04
+1.20D					
Span # 1	1	10.500	-12.27	415.32	0.03
Span # 2	2	10.500	-12.53	389.21	0.03
+1.20D+1.60Lr					
Span # 1	1	10.500	-18.76	415.32	0.05
Span # 2	2	10.500	-19.14	389.21	0.05
+0.90D					
Span # 1	1	10.500	-9.21	415.32	0.02
Span # 2	2	10.500	-9.40	389.21	0.02

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.0005	4.350		0.0000	0.000
2	+D+Lr	0.0005	6.150		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-2 FAMILY/TERR**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

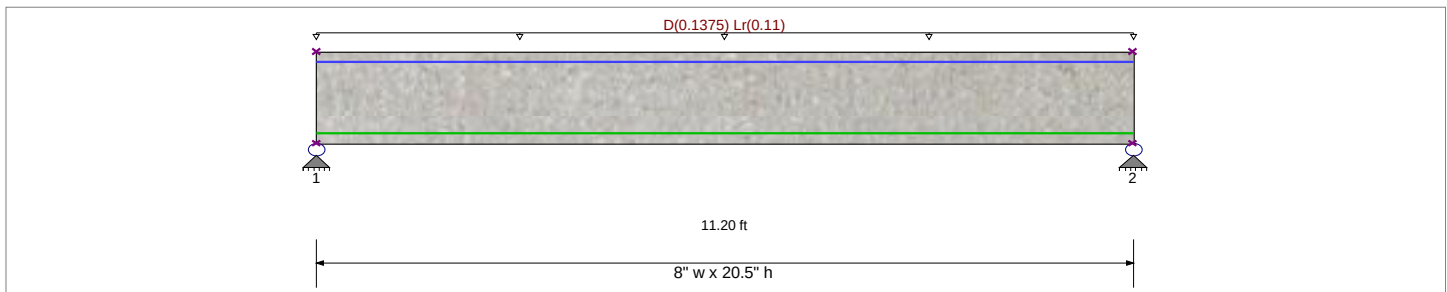
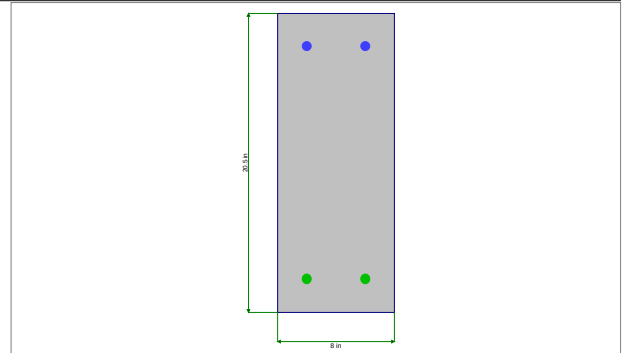
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 20.50 in

Span #1 Reinforcing....

2-#5 at 2.250 in from Top, from 0.0 to 11.20 ft in this span

2-#5 at 2.30 in from Bottom, from 0.0 to 11.20 ft in this :

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 5.50 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.175 : 1
Section used for this span		Typical Section
Mu : Applied		8.454 k-ft
ϕ Mn : Allowable		48.266 k-ft
Location of maximum on span		5.610 ft
Span # where maximum occurs		Span # 1

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.02157 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
0.620 in^2 >= 0.164 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.002 in	Ratio = 61900	>=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio = 0	<360.0	Lr Only
Max Downward Total Deflection	0.008 in	Ratio = 16501	>=240.0	Span: 1 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio = 0	<240.0	Span: 1 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.311	2.311
Max Upward from Load Combinations	2.311	2.311
Max Upward from Load Cases	1.695	1.695
D Only	1.695	1.695

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-2 FAMILY/TERR**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+D+Lr	2.311	2.311
+D+0.750Lr	2.157	2.157
+0.60D	1.017	1.017
Lr Only	0.616	0.616

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	1.695	0.616					
Support #2	1.695	0.616					

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	11.200	8.45	48.27	0.18
+1.40D					
Span # 1	1	11.200	6.64	48.27	0.14
+1.20D+0.50Lr					
Span # 1	1	11.200	6.56	48.27	0.14
+1.20D					
Span # 1	1	11.200	5.69	48.27	0.12
+1.20D+1.60Lr					
Span # 1	1	11.200	8.45	48.27	0.18
+0.90D					
Span # 1	1	11.200	4.27	48.27	0.09

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.0081	5.600		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-4**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

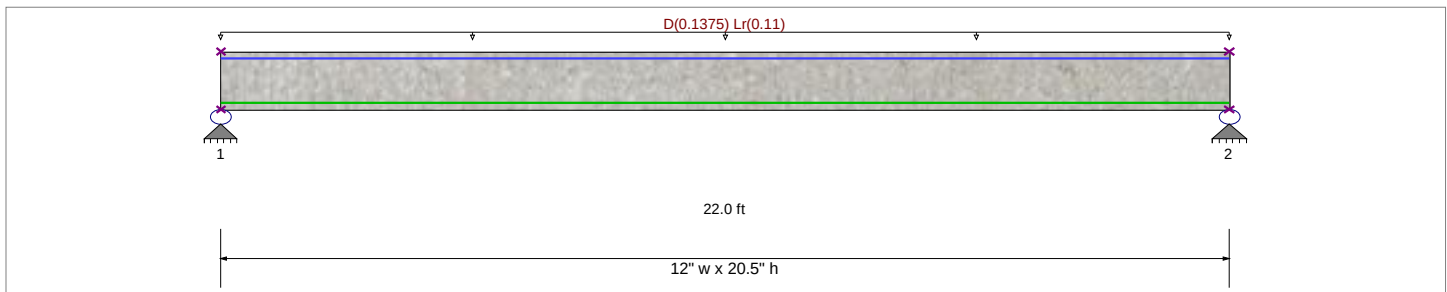
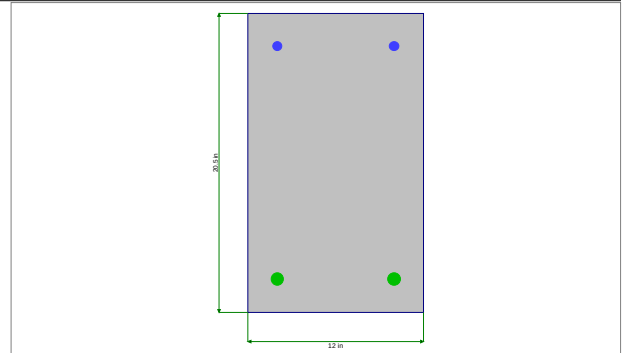
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 20.50 in

Span #1 Reinforcing....

2-#5 at 2.250 in from Top, from 0.0 to 22.0 ft in this span

2-#7 at 2.30 in from Bottom, from 0.0 to 22.0 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 5.50 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.420	: 1
Section used for this span		Typical Section	
Mu : Applied		38.614	k-ft
ϕ Mn : Allowable		91.929	k-ft
Location of maximum on span		10.980	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.01841 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
1.200 in^2 >= 0.728 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.022 in	Ratio =	12251	>=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0	Lr Only
Max Downward Total Deflection	0.205 in	Ratio =	1286	>=240.0	Span: 1 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	Span: 1 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	5.447	5.447
Max Upward from Load Combinations	5.447	5.447
Max Upward from Load Cases	4.237	4.237
D Only	4.237	4.237

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-4**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+D+Lr	5.447	5.447
+D+0.750Lr	5.145	5.145
+0.60D	2.542	2.542
Lr Only	1.210	1.210

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	4.237	1.210					
Support #2	4.237	1.210					

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	22.000	38.61	91.93	0.42
+1.40D					
Span # 1	1	22.000	32.63	91.93	0.35
+1.20D+0.50Lr					
Span # 1	1	22.000	31.29	91.93	0.34
+1.20D					
Span # 1	1	22.000	27.97	91.93	0.30
+1.20D+1.60Lr					
Span # 1	1	22.000	38.61	91.93	0.42
+0.90D					
Span # 1	1	22.000	20.97	91.93	0.23

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.2052	11.000		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-5**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

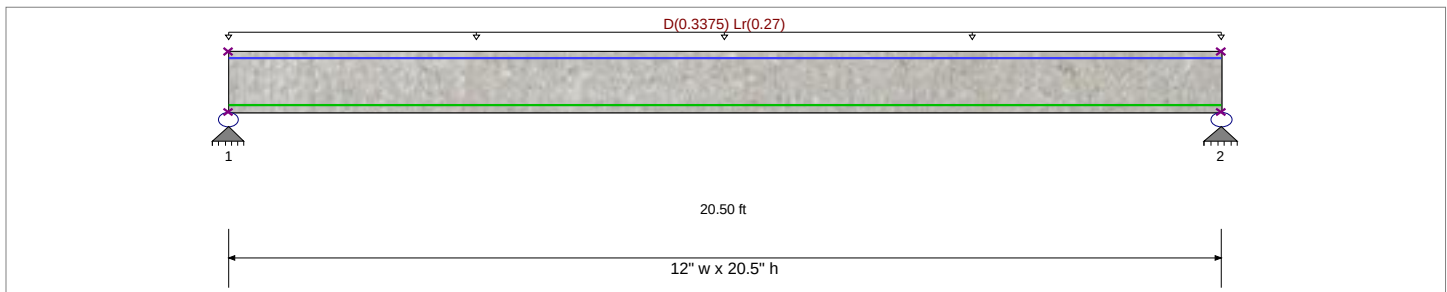
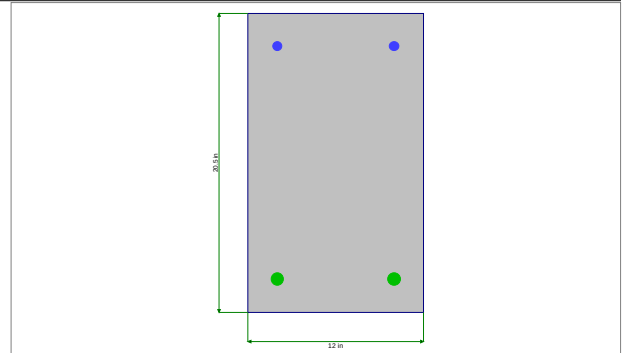
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 20.50 in

Span #1 Reinforcing....

2-#5 at 2.250 in from Top, from 0.0 to 20.50 ft in this span

2-#7 at 2.30 in from Bottom, from 0.0 to 20.50 ft in this :

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 13.50 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.648	: 1
Section used for this span		Typical Section	
Mu : Applied		59.583	k-ft
ϕ Mn : Allowable		91.929	k-ft
Location of maximum on span		10.231	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit	(Section 9.3.3.1)
0.01841 in / in >= 0.00507 in / in	OK
As Provided >= As,min	(Section 9.6.1.2)
1.200 in^2 >= 0.865 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.040 in	Ratio =	6168	>=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0	Lr Only
Max Downward Total Deflection	0.355 in	Ratio =	692	>=240.0	Span: 1 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	Span: 1 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	8.766	8.766
Max Upward from Load Combinations	8.766	8.766
Max Upward from Load Cases	5.998	5.998
D Only	5.998	5.998

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-5**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+D+Lr	8.766	8.766
+D+0.750Lr	8.074	8.074
+0.60D	3.599	3.599
Lr Only	2.768	2.767

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	5.998	2.768					
Support #2	5.998	2.767					

Shear Stirrup Requirements

Between 0.00 to 2.32 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 2.35 to 18.15 ft, Stirrups are not required.

Between 18.18 to 20.46 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mnx	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	20.500	59.58	91.93	0.65
+1.40D					
Span # 1	1	20.500	43.04	91.93	0.47
+1.20D+0.50Lr					
Span # 1	1	20.500	43.98	91.93	0.48
+1.20D					
Span # 1	1	20.500	36.89	91.93	0.40
+1.20D+1.60Lr					
Span # 1	1	20.500	59.58	91.93	0.65
+0.90D					
Span # 1	1	20.500	27.67	91.93	0.30

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.3554	10.250		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-6**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

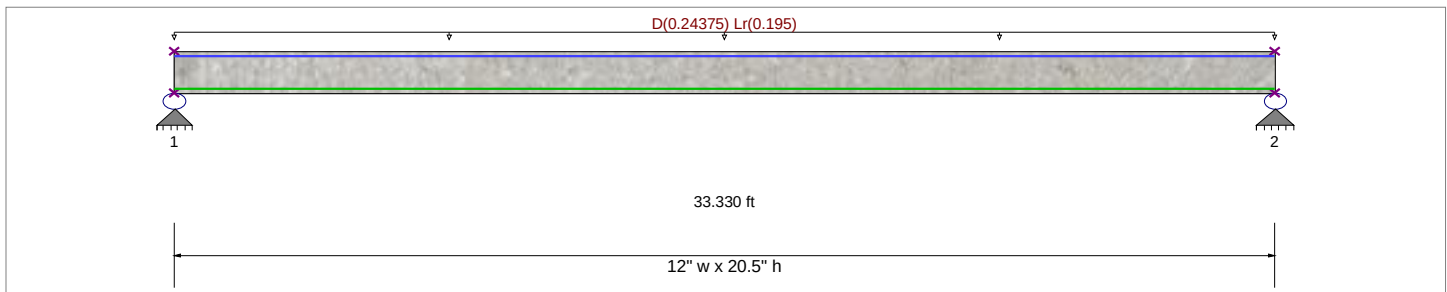
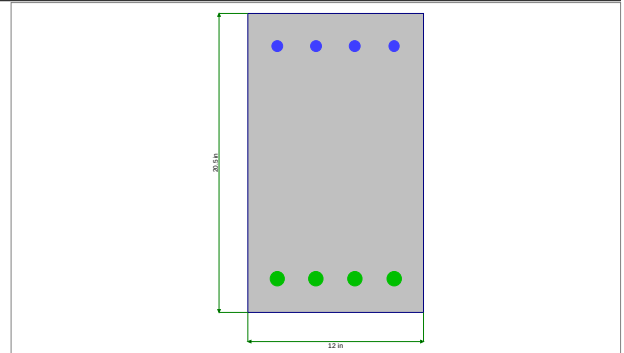
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 20.50 in

Span #1 Reinforcing....

4-#6 at 2.250 in from Top, from 0.0 to 33.330 ft in this span

4-#8 at 2.30 in from Bottom, from 0.0 to 33.330 ft in this

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 9.750 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.545	: 1
Section used for this span		Typical Section	
Mu : Applied		125.218	k-ft
ϕ Mn : Allowable		229.826	k-ft
Location of maximum on span		16.695	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit	(Section 9.3.3.1)
0.00918 in / in >= 0.00507 in / in	OK
As Provided >= As,min	(Section 9.6.1.2)
3.160 in^2 >= 1.819 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.244 in	Ratio =	1640	>=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0	Lr Only
Max Downward Total Deflection	1.108 in	Ratio =	360	>=240.0	Span: 1 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	Span: 1 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	11.440	11.440
Max Upward from Load Combinations	11.440	11.440
Max Upward from Load Cases	8.190	8.190
D Only	8.190	8.190

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-6**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+D+Lr	11.440	11.440
+D+0.750Lr	10.627	10.627
+0.60D	4.914	4.914
Lr Only	3.250	3.250

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	8.190	3.250					
Support #2	8.190	3.250					

Shear Stirrup Requirements

Between 0.00 to 6.68 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 6.74 to 26.59 ft, Stirrups are not required.

Between 26.65 to 33.27 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	33.330	125.22	229.83	0.54
+1.40D					
Span # 1	1	33.330	95.54	229.83	0.42
+1.20D+0.50Lr					
Span # 1	1	33.330	95.43	229.83	0.42
+1.20D					
Span # 1	1	33.330	81.89	229.83	0.36
+1.20D+1.60Lr					
Span # 1	1	33.330	125.22	229.83	0.54
+0.90D					
Span # 1	1	33.330	61.42	229.83	0.27

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	1.1084	16.665		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-7**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

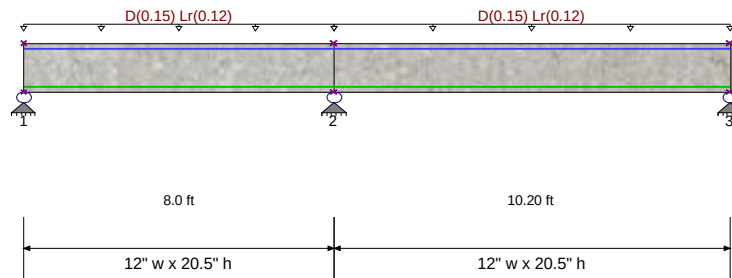
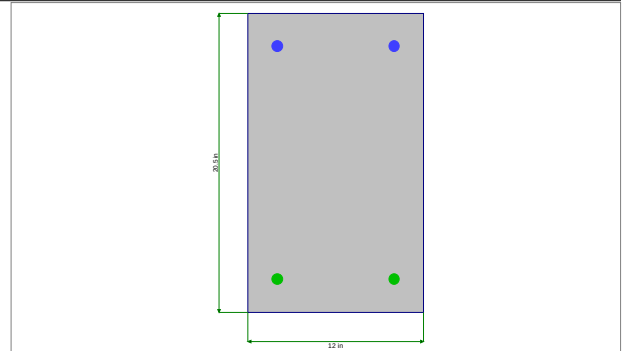
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 20.50 in

Span #1 Reinforcing....

2-#6 at 2.250 in from Top, from 0.0 to 8.0 ft in this span

2-#6 at 2.30 in from Bottom, from 0.0 to 8.0 ft in this span

Span #2 Reinforcing....

2-#6 at 2.250 in from Top, from 0.0 to 10.20 ft in this span

2-#6 at 2.30 in from Bottom, from 0.0 to 10.20 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 6.0 ft, (ROOF)

Load for Span Number 2

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 6.0 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.105	: 1
Section used for this span		Typical Section	
Mu : Applied		-7.231	k-ft
ϕ Mn : Allowable		69.007	k-ft
Location of maximum on span		0.000	ft
Span # where maximum occurs		Span # 2	

Design Limits

Tensile Strain >= Min Strain Limit	(Section 9.3.3.1)
0.02204 in / in >= 0.00507 in / in	OK
As Provided >= As,min	(Section 9.6.1.2)
0.880 in^2 >= 0.140 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360.0	Lr Only
Max Downward Total Deflection	0.002 in	Ratio =	51145 >= 240.0	Span: 2 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio =	0 < 240.0	Span: 2 : +D+Lr

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 1B-7**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	1.372	5.959	2.092
Max Upward from Load Combinations	1.372	5.959	2.092
Max Upward from Load Cases	1.054	4.578	1.607
D Only	1.054	4.578	1.607
+D+Lr	1.372	5.959	2.092
+D+0.750Lr	1.292	5.613	1.971
+0.60D	0.632	2.747	0.964
Lr Only	0.318	1.381	0.485

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	1.054	0.318					
Support #2	4.578	1.381					
Support #3	1.607	0.485					

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	8.000	-7.11	69.01	0.10
Span # 2	2	10.200	-7.23	69.01	0.10
+1.40D					
Span # 1	1	8.000	-5.92	69.01	0.09
Span # 2	2	10.200	-6.02	69.01	0.09
+1.20D+0.50Lr					
Span # 1	1	8.000	-5.71	69.01	0.08
Span # 2	2	10.200	-5.80	69.01	0.08
+1.20D					
Span # 1	1	8.000	-5.07	69.01	0.07
Span # 2	2	10.200	-5.16	69.01	0.07
+1.20D+1.60Lr					
Span # 1	1	8.000	-7.11	69.01	0.10
Span # 2	2	10.200	-7.23	69.01	0.10
+0.90D					
Span # 1	1	8.000	-3.81	69.01	0.06
Span # 2	2	10.200	-3.87	69.01	0.06

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.0004	2.857	+D+Lr	-0.0001	7.200
2	+D+Lr	0.0024	5.683		0.0000	7.200

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-1**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

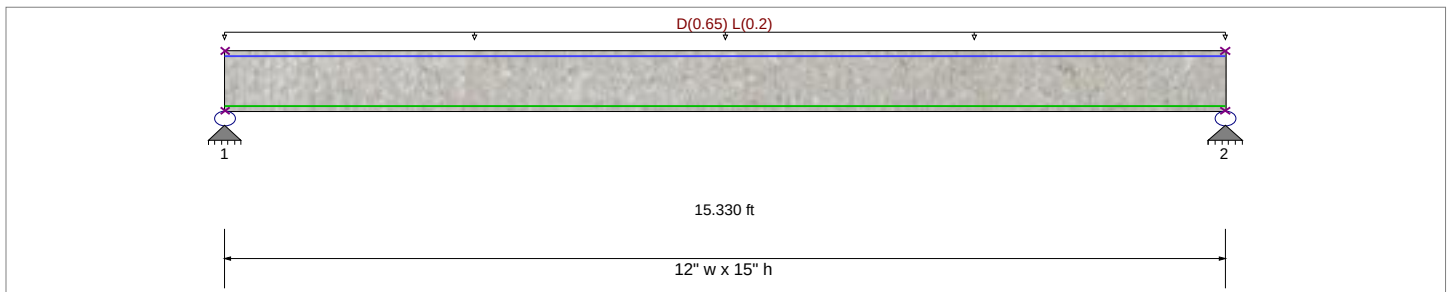
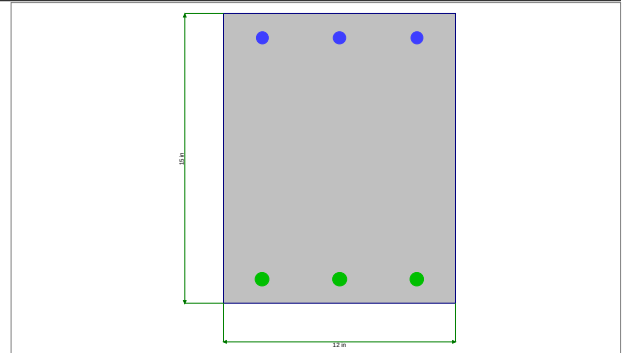
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 15.0 in

Span #1 Reinforcing....

3-#5 at 1.250 in from Top, from 0.0 to 15.330 ft in this span

3-#6 at 1.250 in from Bottom, from 0.0 to 15.330 ft in th

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 5.0 ft, (2ND FL)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.510	: 1
Section used for this span		Typical Section	
Mu : Applied		38.703	k-ft
ϕ Mn : Allowable		75.842	k-ft
Location of maximum on span		7.679	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.01786 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
1.320 in^2 >= 0.744 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.024 in	Ratio =	7801	>=360.0	L Only
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0	L Only
Max Downward Total Deflection	0.250 in	Ratio =	735	>=240.0	Span: 1 : +D+L
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	Span: 1 : +D+L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	7.905	7.905
Max Upward from Load Combinations	7.905	7.905
Max Upward from Load Cases	6.372	6.372
D Only	6.372	6.372

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-1**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+D+L	7.905	7.905
+D+0.750L	7.521	7.521
+0.60D	3.823	3.823
L Only	1.533	1.533

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	6.372		1.533				
Support #2	6.372		1.533				

Shear Stirrup Requirements

Between 0.00 to 2.51 ft, use #3 x 2-leg stirrups spaced at 6 in (Max spacing per 9.7.6.2.2)

Between 2.54 to 12.79 ft, Stirrups are not required.

Between 12.82 to 15.30 ft, use #3 x 2-leg stirrups spaced at 6 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mnx	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	15.330	38.70	75.84	0.51
+1.40D					
Span # 1	1	15.330	34.19	75.84	0.45
+1.20D+1.60L					
Span # 1	1	15.330	38.70	75.84	0.51
+1.20D+L					
Span # 1	1	15.330	35.18	75.84	0.46
+1.20D					
Span # 1	1	15.330	29.30	75.84	0.39
+0.90D					
Span # 1	1	15.330	21.98	75.84	0.29

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+L	0.2502	7.665		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-2**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

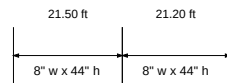
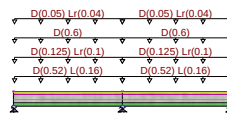
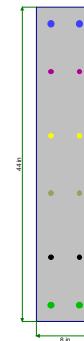
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 44.0 in

Span #1 Reinforcing....

2-#7 at 2.30 in from Top, from 0.0 to 21.50 ft in this span

2-#5 at 9.0 in from Top, from 0.0 to 21.50 ft in this span

2-#5 at 18.0 in from Top, from 0.0 to 21.50 ft in this span

Span #2 Reinforcing....

2-#7 at 2.30 in from Top, from 0.0 to 21.20 ft in this span

2-#5 at 9.0 in from Top, from 0.0 to 21.20 ft in this span

2-#5 at 18.0 in from Top, from 0.0 to 21.20 ft in this span

2-#7 at 2.30 in from Bottom, from 0.0 to 21.50 ft in this :

2-#5 at 9.0 in from Bottom, from 0.0 to 21.50 ft in this sj

2-#5 at 18.0 in from Bottom, from 0.0 to 21.50 ft in this :

2-#7 at 2.30 in from Bottom, from 0.0 to 21.20 ft in this :

2-#5 at 9.0 in from Bottom, from 0.0 to 21.20 ft in this sj

2-#5 at 18.0 in from Bottom, from 0.0 to 21.20 ft in this :

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 4.0 ft, (2ND FL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 5.0 ft, (ROOF)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 2.0 ft, (LOW ROOF)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 4.0 ft, (2ND FL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 5.0 ft, (ROOF)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 2.0 ft, (LOW ROOF)

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-2**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =	0.327 : 1	Design Limits
Section used for this span	Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)
Mu : Applied	-134.678 k-ft	0.01405 in / in >= 0.00507 in / in OK
φ Mn : Allowable	412.263 k-ft	As Provided >= As,min (Section 9.6.1.2)
Location of maximum on span	0.000 ft	3.060 in^2 >= 1.112 in^2 OK
Span # where maximum occurs	Span # 2	

Maximum Deflection

Max Downward Transient Deflection	0.002 in	Ratio = 140638 >=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio = 0 <360.0	L Only
Max Downward Total Deflection	0.026 in	Ratio = 9788 >=240.0	Span: 2 : +D+0.750Lr+0.750L
Max Upward Total Deflection	0.000 in	Ratio = 0 <240.0	Span: 2 : +D+0.750Lr+0.750L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	15.933	48.514	15.592
Max Upward from Load Combinations	15.933	48.514	15.592
Max Upward from Load Cases	13.880	42.973	13.578
D Only	13.880	42.973	13.578
+D+L	15.358	46.876	15.029
+D+Lr	15.176	46.384	14.850
+D+0.750Lr+0.750L	15.933	48.514	15.592
+D+0.750L	14.992	45.895	14.669
+0.60D	8.016	26.413	7.830
Lr Only	1.134	3.736	1.108
L Only	1.296	4.270	1.266

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	13.880	1.134	1.296				
Support #2	42.973	3.736	4.270				
Support #3	13.578	1.108	1.266				

Shear Stirrup Requirements

Between 0.00 to 4.12 ft, use #3 x 2-leg stirrups spaced at 14 in (Max spacing per 9.7.6.2.2)

Between 4.21 to 12.02 ft, Stirrups are not required.

Between 12.11 to 30.76 ft, use #3 x 2-leg stirrups spaced at 14 in (Max spacing per 9.7.6.2.2)

Between 30.85 to 38.72 ft, Stirrups are not required.

Between 38.81 to 42.61 ft, use #3 x 2-leg stirrups spaced at 14 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination		Location (ft)	Bending Stress Results (k-ft)		
Segment	Span #	along Beam	Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	21.500	-131.91	412.26	0.32
Span # 2	2	21.200	-134.68	412.26	0.33
+1.40D					
Span # 1	1	21.500	-128.89	412.26	0.31
Span # 2	2	21.200	-131.59	412.26	0.32
+1.20D+0.50Lr+1.60L					
Span # 1	1	21.500	-128.67	412.26	0.31
Span # 2	2	21.200	-131.37	412.26	0.32
+1.20D+1.60L					
Span # 1	1	21.500	-124.76	412.26	0.30
Span # 2	2	21.200	-127.38	412.26	0.31
+1.20D+1.60Lr+L					
Span # 1	1	21.500	-131.91	412.26	0.32
Span # 2	2	21.200	-134.68	412.26	0.33
+1.20D+1.60Lr					
Span # 1	1	21.500	-122.98	412.26	0.30
Span # 2	2	21.200	-125.56	412.26	0.30
+1.20D+L					
Span # 1	1	21.500	-119.41	412.26	0.29

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-2

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
Span # 2	2	21.200	-121.91	412.26	0.30
+1.20D					
Span # 1	1	21.500	-110.47	412.26	0.27
Span # 2	2	21.200	-112.79	412.26	0.27
+1.20D+0.50Lr+L					
Span # 1	1	21.500	-123.31	412.26	0.30
Span # 2	2	21.200	-125.90	412.26	0.31
+0.90D					
Span # 1	1	21.500	-82.86	412.26	0.20
Span # 2	2	21.200	-84.60	412.26	0.21

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft) in Span	Load Combination	Max. "+" Defl (in) in Span	Location (ft) in Span
1	+D+0.750Lr+0.750L	0.0264	9.521		0.0000	0.000
2	+D+0.750Lr+0.750L	0.0233	11.811		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-3**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

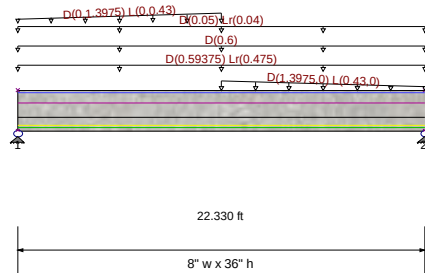
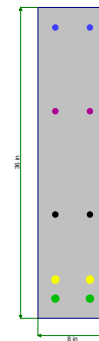
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 36.0 in

Span #1 Reinforcing....

2-#5 at 2.30 in from Top, from 0.0 to 22.330 ft in this span
 2-#5 at 12.0 in from Top, from 0.0 to 22.330 ft in this span
 2-#7 at 4.50 in from Bottom, from 0.0 to 22.330 ft in this span

2-#7 at 2.30 in from Bottom, from 0.0 to 22.330 ft in this
 2-#5 at 12.0 in from Bottom, from 0.0 to 22.330 ft in this

Beam self weight calculated and added to loads**Load for Span Number 1**

Varying Uniform Load : D= 0.130->0.0, L= 0.040->0.0 ksf, Extent = 11.165 -->> 22.330 ft, Trib Width = 10.750 ft, (2ND FL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 23.750 ft, (ROOF)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 2.0 ft, (LOW ROOF)

Varying Uniform Load : D= 0.0->0.130, L= 0.0->0.040 ksf, Extent = 0.0 -->> 11.165 ft, Trib Width = 10.750 ft, (2ND FL)

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-3**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =		0.669 : 1	Design Limits	
Section used for this span		Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied		253.625 k-ft	0.00784 in / in >=	0.00507 in / in OK
φ Mn : Allowable		379.20 k-ft	As Provided >= As,min	(Section 9.6.1.2)
Location of maximum on span		11.185 ft	3.020 in^2 >=	1.990 in^2 OK
Span # where maximum occurs		Span # 1		
Maximum Deflection				
Max Downward Transient Deflection	0.030 in	Ratio = 9034	>=360.0 L Only	
Max Upward Transient Deflection	0.000 in	Ratio = 0	<360.0 Lr Only	
Max Downward Total Deflection	0.340 in	Ratio = 787	>=240.0 Span: 1 : +D+0.750Lr+0.750L	
Max Upward Total Deflection	0.000 in	Ratio = 0	<240.0 Span: 1 : +D+0.750Lr+0.750L	

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	31.039	31.039
Max Upward from Load Combinations	31.039	31.039
Max Upward from Load Cases	24.926	24.926
D Only	24.926	24.926
+D+L	27.326	27.326
+D+Lr	30.676	30.676
+D+0.750Lr+0.750L	31.039	31.039
+D+0.750L	26.726	26.726
+0.60D	14.956	14.956
Lr Only	5.750	5.750
L Only	2.400	2.400

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	24.926	5.750	2.400				
Support #2	24.926	5.750	2.400				

Shear Stirrup Requirements

Between 0.00 to 0.08 ft, use #3 x 2-leg stirrups spaced at 11 in (Reqd Vs per 22.5.8.1)
 Between 0.12 to 0.69 ft, use #3 x 2-leg stirrups spaced at 12 in (Reqd Vs per 22.5.8.1)
 Between 0.73 to 9.15 ft, use #3 x 2-leg stirrups spaced at 13 in (Max spacing per 9.7.6.2.2)
 Between 9.19 to 13.14 ft, Stirrups are not required.
 Between 13.18 to 21.60 ft, use #3 x 2-leg stirrups spaced at 13 in (Reqd Vs per 22.5.8.1)
 Between 21.64 to 22.21 ft, use #3 x 2-leg stirrups spaced at 12 in (Reqd Vs per 22.5.8.1)
 Between 22.25 to 22.29 ft, use #3 x 2-leg stirrups spaced at 11 in (Reqd Vs per 22.5.8.1)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	22.330	253.62	379.20	0.67
+1.40D					
Span # 1	1	22.330	215.13	379.20	0.57
+1.20D+0.50Lr+1.60L					
Span # 1	1	22.330	229.04	379.20	0.60
+1.20D+1.60L					
Span # 1	1	22.330	212.99	379.20	0.56
+1.20D+1.60Lr+L					
Span # 1	1	22.330	253.62	379.20	0.67
+1.20D+1.60Lr					
Span # 1	1	22.330	235.76	379.20	0.62
+1.20D+L					
Span # 1	1	22.330	202.27	379.20	0.53
+1.20D					
Span # 1	1	22.330	184.40	379.20	0.49
+1.20D+0.50Lr+L					
Span # 1	1	22.330	218.32	379.20	0.58
+0.90D					

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-3

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	ϕ Mn _x	Stress Ratio
Span # 1	1	22.330	138.30	379.20	0.36

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location in Span (ft)	Load Combination	Max. "+" Defl (in) in Span	Location in Span (ft)
1	+D+0.750Lr+0.750L	0.3403	11.165		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-4 (REV 4 SPANS 052626)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

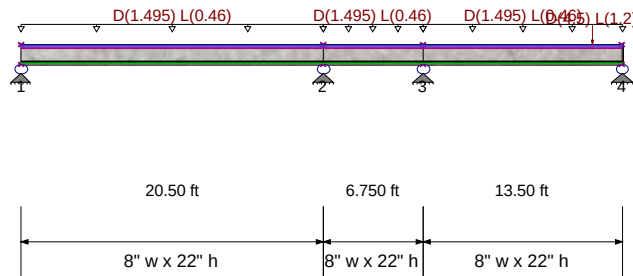
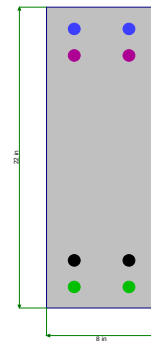
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.02 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 22.0 in

Span #1 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 20.50 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 20.50 ft in this span

2-#7 at 1.560 in from Bottom, from 0.0 to 20.50 ft in this

2-#7 at 3.50 in from Bottom, from 0.0 to 20.50 ft in this :

Span #2 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 6.750 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 6.750 ft in this span

2-#7 at 1.560 in from Bottom, from 0.0 to 6.750 ft in this

2-#7 at 3.50 in from Bottom, from 0.0 to 6.750 ft in this :

Span #3 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 13.50 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 13.50 ft in this span

2-#7 at 1.560 in from Bottom, from 0.0 to 13.50 ft in this

2-#7 at 3.50 in from Bottom, from 0.0 to 13.50 ft in this :

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.50 ft, (2ND FL)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.50 ft, (2ND FL)

Load for Span Number 3

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.50 ft, (2ND FL)

Point Load : D = 4.50, L = 1.20 k @ 11.50 ft, (STAIRS)

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-4 (REV 4 SPANS 052626)**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =		0.567 : 1	Design Limits	
Section used for this span		Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied		-108.093 k-ft	0.01228 in / in >=	0.00507 in / in OK
φ Mn : Allowable		190.731 k-ft	As Provided >= As,min	(Section 9.6.1.2)
Location of maximum on span		0.000 ft	2.400 in^2 >=	1.398 in^2 OK
Span # where maximum occurs		Span # 2		
Maximum Deflection				
Max Downward Transient Deflection	0.047 in	Ratio = 5214 >=360.0	L Only	
Max Upward Transient Deflection	-0.004 in	Ratio = 18641 >=360.0	L Only	
Max Downward Total Deflection	0.306 in	Ratio = 803 >=240.0	Span: 3 : +D+L	
Max Upward Total Deflection	-0.029 in	Ratio = 2830 >=240.0	Span: 3 : +D+L	

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	17.755	41.747	15.767	17.319
Max Upward from Load Combinations	17.755	41.747	15.767	17.319
Max Upward from Load Cases	13.920	32.760	12.355	13.608
D Only	13.920	32.760	12.355	13.608
+D+L	17.755	41.747	15.767	17.319
+D+0.750L	16.796	39.505	14.908	16.393
+0.60D	8.347	19.685	7.382	8.171
L Only	3.836	8.983	3.416	3.710

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	13.920		3.836				
Support #2	32.760		8.983				
Support #3	12.355		3.416				
Support #4	13.608		3.710				

Shear Stirrup Requirements

Between 0.00 to 5.88 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 6.01 to 10.66 ft, Stirrups are not required.

Between 10.80 to 25.54 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 25.59 to 27.21 ft, Stirrups are not required.

Between 27.25 to 32.92 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 33.01 to 37.60 ft, Stirrups are not required.

Between 37.69 to 40.66 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	20.500	-103.56	190.73	0.54
Span # 2	2	6.750	-108.09	190.73	0.57
Span # 3	3	13.500	55.32	190.73	0.29
+1.40D					
Span # 1	1	20.500	-88.39	190.73	0.46
Span # 2	2	6.750	-92.26	190.73	0.48
Span # 3	3	13.500	47.27	190.73	0.25
+1.20D+1.60L					
Span # 1	1	20.500	-103.56	190.73	0.54
Span # 2	2	6.750	-108.09	190.73	0.57
Span # 3	3	13.500	55.32	190.73	0.29
+1.20D+L					
Span # 1	1	20.500	-93.13	190.73	0.49
Span # 2	2	6.750	-97.21	190.73	0.51
Span # 3	3	13.500	49.77	190.73	0.26
+1.20D					
Span # 1	1	20.500	-75.76	190.73	0.40
Span # 2	2	6.750	-79.08	190.73	0.41
Span # 3	3	13.500	40.52	190.73	0.21

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-4 (REV 4 SPANS 052626)

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	ϕ Mn _x	Stress Ratio
+0.90D					
Span # 1	1	20.500	-56.82	190.73	0.30
Span # 2	2	6.750	-59.31	190.73	0.31
Span # 3	3	13.500	30.39	190.73	0.16

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+L	0.3062	9.430	+D+L	-0.0027	20.635
2	+D+L	0.0039	7.020	+D+L	-0.0286	3.105
3	+D+L	0.0816	7.290		0.0000	3.105

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-5 (REV 021126)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

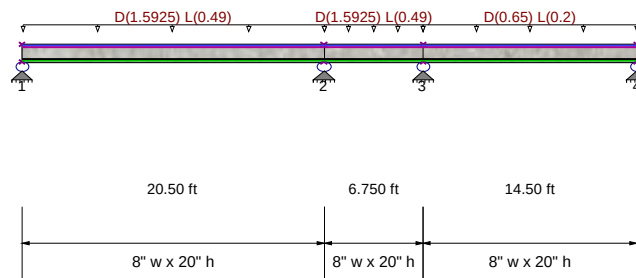
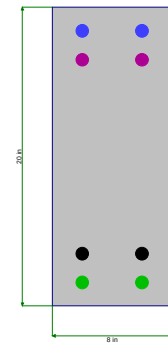
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 20.0 in

Span #1 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 20.50 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 20.50 ft in this span

Span #2 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 6.750 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 6.750 ft in this span

Span #3 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 14.50 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 14.50 ft in this span

2-#7 at 1.560 in from Bottom, from 0.0 to 20.50 ft in this

2-#7 at 3.50 in from Bottom, from 0.0 to 20.50 ft in this :

2-#7 at 1.560 in from Bottom, from 0.0 to 6.750 ft in this

2-#7 at 3.50 in from Bottom, from 0.0 to 6.750 ft in this :

2-#7 at 1.560 in from Bottom, from 0.0 to 14.50 ft in this

2-#7 at 3.50 in from Bottom, from 0.0 to 14.50 ft in this :

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 12.250 ft, (2ND FL)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 12.250 ft, (2ND FL)

Load for Span Number 3

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 5.0 ft, (2ND FL)

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-5 (REV 021126)**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =		0.692 : 1		Design Limits	
Section used for this span		Typical Section		Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied		-117.0 k-ft		0.01074 in / in >= 0.00507 in / in OK	
φ Mn : Allowable		169.131 k-ft		As Provided >= As,min (Section 9.6.1.2)	
Location of maximum on span		0.000 ft		2.400 in^2 >= 1.677 in^2 OK	
Span # where maximum occurs		Span # 2			
Maximum Deflection					
Max Downward Transient Deflection		0.072 in	Ratio =	3433	>=360.0 L Only
Max Upward Transient Deflection		-0.005 in	Ratio =	15488	>=360.0 L Only
Max Downward Total Deflection		0.406 in	Ratio =	605	>=240.0 Span: 3 : +D+L
Max Upward Total Deflection		-0.032 in	Ratio =	2536	>=240.0 Span: 3 : +D+L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	18.555	47.511	2.864	6.870
Max Upward from Load Combinations	18.555	47.511	2.864	6.870
Max Upward from Load Cases	14.499	37.154	2.371	5.523
D Only	14.499	37.154	2.371	5.523
+D+L	18.555	47.511	2.864	6.870
+D+0.750L	17.541	44.919	2.744	6.532
+0.60D	8.695	22.361	1.337	3.336
L Only	4.054	10.402	0.433	1.364

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	14.499		4.054				
Support #2	37.154		10.402				
Support #3	2.371		0.433				
Support #4	5.523		1.364				

Shear Stirrup Requirements

Between 0.00 to 6.15 ft, use #3 x 2-leg stirrups spaced at 8 in (Max spacing per 9.7.6.2.2)

Between 6.29 to 10.25 ft, Stirrups are not required.

Between 10.39 to 19.82 ft, use #3 x 2-leg stirrups spaced at 8 in (Reqd Vs per 22.5.8.1)

Between 19.95 to 20.23 ft, use #3 x 2-leg stirrups spaced at 7 in (Reqd Vs per 22.5.8.1)

Between 20.36 to 20.36 ft, use #3 x 2-leg stirrups spaced at 4 in (Max spacing per 9.7.6.2.2)

Between 20.50 to 30.54 ft, use #3 x 2-leg stirrups spaced at 8 in (Max spacing per 9.7.6.2.2)

Between 30.63 to 39.43 ft, Stirrups are not required.

Between 39.53 to 41.65 ft, use #3 x 2-leg stirrups spaced at 8 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	20.500	-112.20	169.13	0.66
Span # 2	2	6.750	-117.00	169.13	0.69
Span # 3	3	14.500	29.25	169.13	0.17
+1.40D					
Span # 1	1	20.500	-95.29	169.13	0.56
Span # 2	2	6.750	-99.37	169.13	0.59
Span # 3	3	14.500	25.50	169.13	0.15
+1.20D+1.60L					
Span # 1	1	20.500	-112.20	169.13	0.66
Span # 2	2	6.750	-117.00	169.13	0.69
Span # 3	3	14.500	29.25	169.13	0.17
+1.20D+L					
Span # 1	1	20.500	-100.75	169.13	0.60
Span # 2	2	6.750	-105.06	169.13	0.62
Span # 3	3	14.500	26.48	169.13	0.16
+1.20D					
Span # 1	1	20.500	-81.68	169.13	0.48
Span # 2	2	6.750	-85.17	169.13	0.50

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-5 (REV 021126)

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	ϕ Mn _x	Stress Ratio
Span # 3	3	14.500	21.86	169.13	0.13
+0.90D					
Span # 1	1	20.500	-61.26	169.13	0.36
Span # 2	2	6.750	-63.88	169.13	0.38
Span # 3	3	14.500	16.39	169.13	0.10

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location in Span (ft)	Load Combination	Max. "+" Defl (in) in Span	Location in Span (ft)
1	+D+L	0.4060	9.430	+D+L	-0.0033	20.635
2	+D+L	0.0036	7.040	+D+L	-0.0319	2.835
3	+D+L	0.0636	7.250		0.0000	2.835

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-6 (REV 021126)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

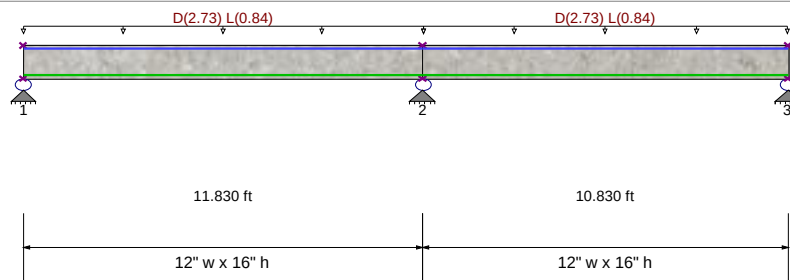
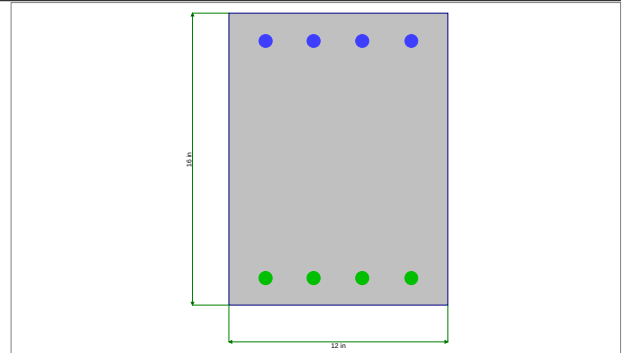
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 16.0 in

Span #1 Reinforcing....

4-#6 at 1.50 in from Top, from 0.0 to 11.830 ft in this span

4-#6 at 1.50 in from Bottom, from 0.0 to 11.830 ft in this

Span #2 Reinforcing....

4-#6 at 1.50 in from Top, from 0.0 to 10.830 ft in this span

4-#6 at 1.50 in from Bottom, from 0.0 to 10.830 ft in this

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 21.0 ft, (2ND FL)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 21.0 ft, (2ND FL)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.743 : 1
Section used for this span		Typical Section
Mu : Applied		-78.311 k-ft
ϕ Mn : Allowable		105.367 k-ft
Location of maximum on span		0.000 ft
Span # where maximum occurs		Span # 2

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.01655 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
1.760 in ² >= 1.428 in ²	OK

Maximum Deflection

Max Downward Transient Deflection	0.013 in	Ratio = 10582	>=360.0	L Only
Max Upward Transient Deflection	0.000 in	Ratio = 0	<360.0	L Only
Max Downward Total Deflection	0.108 in	Ratio = 1316	>=240.0	Span: 2 : +D+L
Max Upward Total Deflection	0.000 in	Ratio = 0	<240.0	Span: 2 : +D+L

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-6 (REV 021126)**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	17.203	53.219	14.855
Max Upward from Load Combinations	17.203	53.219	14.855
Max Upward from Load Cases	13.401	41.262	11.580
D Only	13.401	41.262	11.580
+D+L	17.203	53.219	14.855
+D+0.750L	16.253	50.229	14.036
+0.60D	8.127	24.576	7.042
L Only	3.834	11.891	3.309

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	13.401		3.834				
Support #2	41.262		11.891				
Support #3	11.580		3.309				

Shear Stirrup Requirements

Between 0.00 to 3.04 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)
 Between 3.09 to 5.99 ft, Stirrups are not required.
 Between 6.04 to 11.69 ft, use #3 x 2-leg stirrups spaced at 7 in (Reqd Vs per 22.5.8.1)
 Between 11.73 to 11.78 ft, use #3 x 2-leg stirrups spaced at 6 in (Reqd Vs per 22.5.8.1)
 Between 11.83 to 17.22 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)
 Between 17.27 to 20.18 ft, Stirrups are not required.
 Between 20.23 to 22.62 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	11.830	-76.61	105.37	0.73
Span # 2	2	10.830	-78.31	105.37	0.74
+1.40D					
Span # 1	1	11.830	-64.62	105.37	0.61
Span # 2	2	10.830	-66.06	105.37	0.63
+1.20D+1.60L					
Span # 1	1	11.830	-76.61	105.37	0.73
Span # 2	2	10.830	-78.31	105.37	0.74
+1.20D+L					
Span # 1	1	11.830	-68.65	105.37	0.65
Span # 2	2	10.830	-70.18	105.37	0.67
+1.20D					
Span # 1	1	11.830	-55.39	105.37	0.53
Span # 2	2	10.830	-56.62	105.37	0.54
+0.90D					
Span # 1	1	11.830	-41.54	105.37	0.39
Span # 2	2	10.830	-42.46	105.37	0.40

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+L	0.1078	5.239	+D+L	-0.0005	11.985
2	+D+L	0.0563	6.343	+D+L	-0.0007	0.464

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-7**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

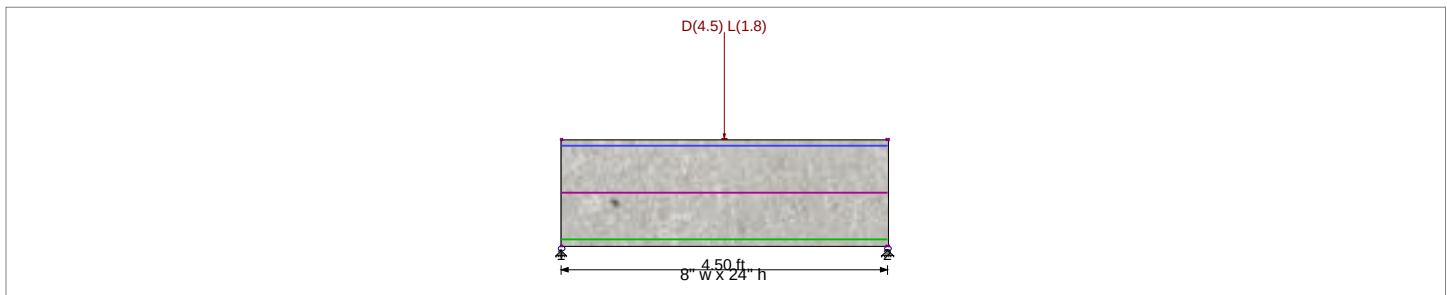
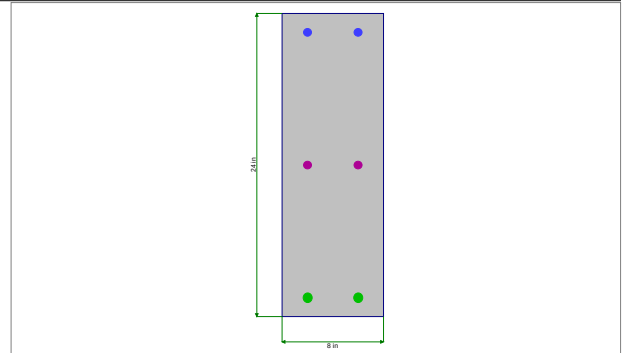
Load Combination Set : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2
Seismic Design Category	=	A			

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 24.0 in

Span #1 Reinforcing....

2-#5 at 1.50 in from Top, from 0.0 to 4.50 ft in this span

2-#6 at 1.50 in from Bottom, from 0.0 to 4.50 ft in this span

2-#5 at 12.0 in from Bottom, from 0.0 to 4.50 ft in this span

Beam self weight calculated and added to loads

Point Load : D = 4.50, L = 1.80 k @ 2.250 ft, (STAIRS)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.088	: 1
Section used for this span		Typical Section	
Mu : Applied		9.885	k-ft
ϕ Mn : Allowable		112.528	k-ft
Location of maximum on span		2.254	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.01615 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
1.500 in^2 >= 0.155 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.000 in	Ratio =	0 < 360.0	L Only
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360.0	L Only
Max Downward Total Deflection	0.000 in	Ratio =	0 < 240.0	Span: 1 : +D+L
Max Upward Total Deflection	0.000 in	Ratio =	0 < 240.0	Span: 1 : +D+L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	3.585	3.585
Max Upward from Load Combinations	3.585	3.585
Max Upward from Load Cases	2.685	2.685
D Only	2.685	2.685

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-7**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+D+L	3.585	3.585
+D+0.750L	3.360	3.360
+0.60D	1.611	1.611
L Only	0.900	0.900

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	2.685		0.900				
Support #2	2.685		0.900				

Shear Stirrup Requirements

Entire Beam Span Length : Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	4.500	9.89	112.53	0.09
+1.40D					
Span # 1	1	4.500	7.76	112.53	0.07
+1.20D+1.60L					
Span # 1	1	4.500	9.89	112.53	0.09
+1.20D+L					
Span # 1	1	4.500	8.67	112.53	0.08
+1.20D					
Span # 1	1	4.500	6.65	112.53	0.06
+0.90D					
Span # 1	1	4.500	4.99	112.53	0.04

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+L	0.0008	2.250		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-8 (REV 052526)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

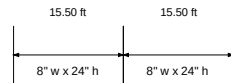
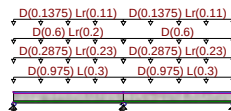
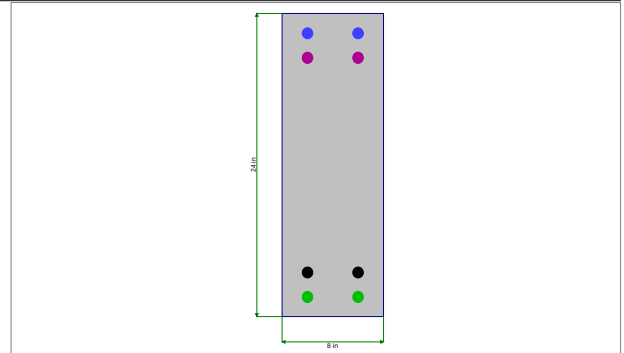
Load Combination Set : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2
Seismic Design Category	=	A			

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 24.0 in

Span #1 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 15.50 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 15.50 ft in this span

2-#7 at 1.560 in from Bottom, from 0.0 to 15.50 ft in this

2-#7 at 3.50 in from Bottom, from 0.0 to 15.50 ft in this :

Span #2 Reinforcing....

2-#7 at 1.560 in from Top, from 0.0 to 15.50 ft in this span

2-#7 at 3.50 in from Top, from 0.0 to 15.50 ft in this span

2-#7 at 1.560 in from Bottom, from 0.0 to 15.50 ft in this

2-#6 at 3.50 in from Bottom, from 0.0 to 15.50 ft in this :

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 7.50 ft, (2ND FL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 11.50 ft, (LOW ROOF TRUSSES)

Uniform Load : D = 0.060, Lr = 0.020 ksf, Tributary Width = 10.0 ft, (MASONRY WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 5.50 ft, (HIGH ROOF TRUSSES)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 7.50 ft, (2ND FL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 11.50 ft, (LOW ROOF TRUSSES)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (MASONRY WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 5.50 ft, (HIGH ROOF TRUSSES)

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-8 (REV 052526)**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =		0.514 : 1	Design Limits	
Section used for this span		Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied		-109.194 k-ft	0.01343 in / in >=	0.00507 in / in OK
φ Mn : Allowable		212.450 k-ft	As Provided >= As,min	(Section 9.6.1.2)
Location of maximum on span		0.000 ft	2.400 in^2 >=	1.286 in^2 OK
Span # where maximum occurs		Span # 2		
Maximum Deflection				
Max Downward Transient Deflection	0.013 in	Ratio = 14685 >=360.0	Lr Only	
Max Upward Transient Deflection	0.000 in	Ratio = 0 <360.0	L Only	
Max Downward Total Deflection	0.078 in	Ratio = 2380 >=240.0	Span: 2 : +D+0.750Lr+0.750L	
Max Upward Total Deflection	0.000 in	Ratio = 0 <240.0	Span: 2 : +D+0.750Lr+0.750L	

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	16.566	53.229	15.403
Max Upward from Load Combinations	16.566	53.229	15.403
Max Upward from Load Cases	12.789	42.415	12.789
D Only	12.789	42.415	12.789
+D+L	14.512	48.270	14.512
+D+Lr	16.100	50.983	14.550
+D+0.750Lr+0.750L	16.566	53.229	15.403
+D+0.750L	14.081	46.807	14.081
+0.60D	7.754	25.288	7.754
Lr Only	3.333	8.525	1.783
L Only	1.744	5.812	1.744

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	12.789	3.333	1.744				
Support #2	42.415	8.525	5.812				
Support #3	12.789	1.783	1.744				

Shear Stirrup Requirements

Between 0.00 to 3.99 ft, use #3 x 2-leg stirrups spaced at 10 in (Max spacing per 9.7.6.2.2)

Between 4.05 to 7.72 ft, Stirrups are not required.

Between 7.78 to 15.18 ft, use #3 x 2-leg stirrups spaced at 10 in (Reqd Vs per 22.5.8.1)

Between 15.25 to 15.44 ft, use #3 x 2-leg stirrups spaced at 9 in (Reqd Vs per 22.5.8.1)

Between 15.50 to 23.22 ft, use #3 x 2-leg stirrups spaced at 10 in (Max spacing per 9.7.6.2.2)

Between 23.28 to 27.27 ft, Stirrups are not required.

Between 27.33 to 30.94 ft, use #3 x 2-leg stirrups spaced at 10 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	15.500	-106.89	212.33	0.50
Span # 2	2	15.500	-109.19	212.45	0.51
+1.40D					
Span # 1	1	15.500	-90.34	212.33	0.43
Span # 2	2	15.500	-92.22	212.45	0.43
+1.20D+0.50Lr+1.60L					
Span # 1	1	15.500	-98.00	212.33	0.46
Span # 2	2	15.500	-100.06	212.45	0.47
+1.20D+1.60L					
Span # 1	1	15.500	-91.56	212.33	0.43
Span # 2	2	15.500	-93.46	212.45	0.44
+1.20D+1.60Lr+L					
Span # 1	1	15.500	-106.89	212.33	0.50
Span # 2	2	15.500	-109.19	212.45	0.51
+1.20D+1.60Lr					
Span # 1	1	15.500	-98.07	212.33	0.46
Span # 2	2	15.500	-100.18	212.45	0.47

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-8 (REV 052526)

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
+1.20D+L					
Span # 1	1	15.500	-86.26	212.33	0.41
Span # 2	2	15.500	-88.05	212.45	0.41
+1.20D					
Span # 1	1	15.500	-77.43	212.33	0.36
Span # 2	2	15.500	-79.04	212.45	0.37
+1.20D+0.50Lr+L					
Span # 1	1	15.500	-92.71	212.33	0.44
Span # 2	2	15.500	-94.66	212.45	0.45
+0.90D					
Span # 1	1	15.500	-58.08	212.33	0.27
Span # 2	2	15.500	-59.28	212.45	0.28

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+0.750Lr+0.750L	0.0781	6.421		0.0000	0.000
2	+D+0.750Lr+0.750L	0.0736	9.079		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-9 (REV 3 SPANS 052626)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

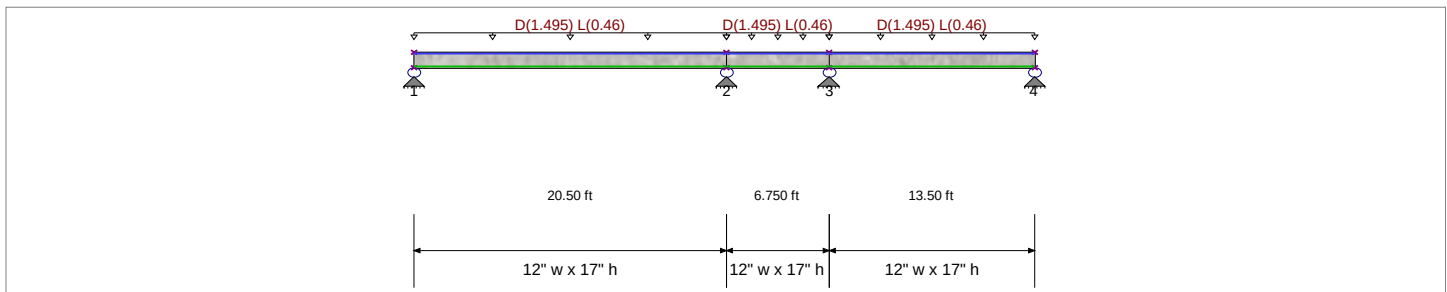
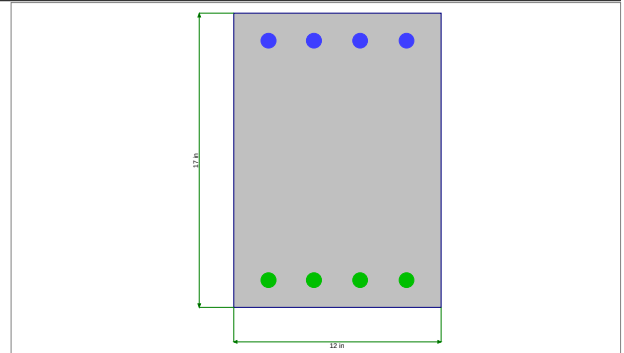
Load Combination Set : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.02 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2
Seismic Design Category	=	A			

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 17.0 in

Span #1 Reinforcing....

4-#7 at 1.560 in from Top, from 0.0 to 20.50 ft in this span

4-#7 at 1.560 in from Bottom, from 0.0 to 20.50 ft in this

Span #2 Reinforcing....

4-#7 at 1.560 in from Top, from 0.0 to 6.750 ft in this span

4-#7 at 1.560 in from Bottom, from 0.0 to 6.750 ft in this

Span #3 Reinforcing....

4-#7 at 1.560 in from Top, from 0.0 to 13.50 ft in this span

4-#7 at 1.560 in from Bottom, from 0.0 to 13.50 ft in this

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.50 ft, (2ND FL)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.50 ft, (2ND FL)

Load for Span Number 3

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.50 ft, (2ND FL)

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-9 (REV 3 SPANS 052626)**DESIGN SUMMARY****Design OK**

Maximum Bending Stress Ratio =		0.723 : 1	Design Limits	
Section used for this span		Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied		-110.037 k-ft	0.01509 in / in >=	0.00507 in / in OK
φ Mn : Allowable		152.272 k-ft	As Provided >= As,min	(Section 9.6.1.2)
Location of maximum on span		0.000 ft	2.400 in^2 >=	1.884 in^2 OK
Span # where maximum occurs		Span # 2		
Maximum Deflection				
Max Downward Transient Deflection	0.072 in	Ratio = 3410 >=360.0	L Only	
Max Upward Transient Deflection	-0.006 in	Ratio = 13143 >=360.0	L Only	
Max Downward Total Deflection	0.472 in	Ratio = 521 >=240.0	Span: 3 : +D+L	
Max Upward Total Deflection	-0.043 in	Ratio = 1898 >=240.0	Span: 3 : +D+L	

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	17.967	42.983	14.163	12.924
Max Upward from Load Combinations	17.967	42.983	14.163	12.924
Max Upward from Load Cases	14.136	33.868	11.108	10.180
D Only	14.136	33.868	11.108	10.180
+D+L	17.967	42.983	14.163	12.924
+D+0.750L	17.009	40.705	13.398	12.239
+0.60D	8.476	20.384	6.587	6.128
L Only	3.829	9.134	3.031	2.750

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	14.136		3.829				
Support #2	33.868		9.134				
Support #3	11.108		3.031				
Support #4	10.180		2.750				

Shear Stirrup Requirements

Between 0.00 to 5.47 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Between 5.60 to 10.93 ft, Stirrups are not required.

Between 11.07 to 25.45 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Between 25.50 to 27.21 ft, Stirrups are not required.

Between 27.25 to 32.02 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Between 32.11 to 37.51 ft, Stirrups are not required.

Between 37.60 to 40.66 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	20.500	-105.44	152.27	0.69
Span # 2	2	6.750	-110.04	152.27	0.72
Span # 3	3	13.500	49.54	152.27	0.33
+1.40D					
Span # 1	1	20.500	-90.40	152.27	0.59
Span # 2	2	6.750	-94.35	152.27	0.62
Span # 3	3	13.500	42.47	152.27	0.28
+1.20D+1.60L					
Span # 1	1	20.500	-105.44	152.27	0.69
Span # 2	2	6.750	-110.04	152.27	0.72
Span # 3	3	13.500	49.54	152.27	0.33
+1.20D+L					
Span # 1	1	20.500	-94.96	152.27	0.62
Span # 2	2	6.750	-99.10	152.27	0.65
Span # 3	3	13.500	44.61	152.27	0.29
+1.20D					
Span # 1	1	20.500	-77.49	152.27	0.51
Span # 2	2	6.750	-80.87	152.27	0.53
Span # 3	3	13.500	36.41	152.27	0.24

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-9 (REV 3 SPANS 052626)

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	ϕ Mn _x	Stress Ratio
+0.90D					
Span # 1	1	20.500	-58.12	152.27	0.38
Span # 2	2	6.750	-60.65	152.27	0.40
Span # 3	3	13.500	27.30	152.27	0.18

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+L	0.4716	9.430	+D+L	-0.0041	20.635
2	+D+L	0.0055	7.020	+D+L	-0.0427	2.835
3	+D+L	0.1109	7.290		0.0000	2.835

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-10**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

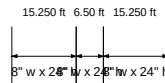
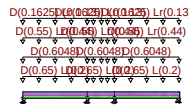
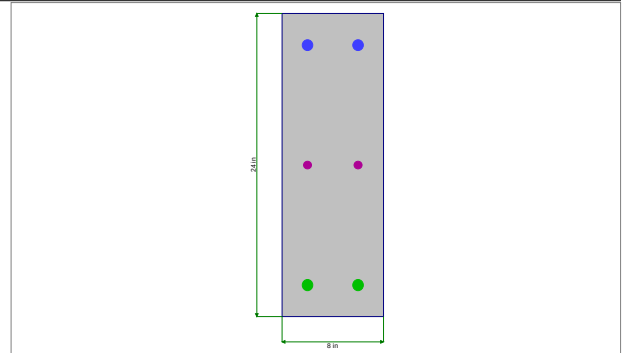
Load Combination Set : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
f_y - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2
Seismic Design Category	=	A			

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 24.0 in

Span #1 Reinforcing....

2-#7 at 2.50 in from Top, from 0.0 to 15.250 ft in this span

2-#5 at 12.0 in from Top, from 0.0 to 15.250 ft in this span

2-#7 at 2.50 in from Bottom, from 0.0 to 15.250 ft in this span

Span #2 Reinforcing....

2-#7 at 2.50 in from Top, from 0.0 to 6.50 ft in this span

2-#5 at 12.0 in from Top, from 0.0 to 6.50 ft in this span

2-#7 at 2.50 in from Bottom, from 0.0 to 6.50 ft in this span

Span #3 Reinforcing....

2-#7 at 2.50 in from Top, from 0.0 to 15.250 ft in this span

2-#5 at 12.0 in from Top, from 0.0 to 15.250 ft in this span

2-#7 at 2.50 in from Bottom, from 0.0 to 15.250 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 5.0 ft, (2ND FL)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.080 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 22.0 ft, (HIGH ROOF TRUSSES)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 6.50 ft, (LOW ROOF TRUSSES)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 5.0 ft, (2ND FL)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.080 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 22.0 ft, (HIGH ROOF TRUSSES)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 6.50 ft, (LOW ROOF TRUSSES)

Load for Span Number 3

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 5.0 ft, (2ND FL)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.080 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 22.0 ft, (HIGH ROOF TRUSSES)

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-10**Applied Loads**

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

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 6.50 ft, (LOW ROOF TRUSSES)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio =	0.565 : 1	Design Limits
Section used for this span	Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)
Mu : Applied	75.213 k-ft	0.01283 in / in >= 0.00507 in / in OK
φ Mn : Allowable	133.179 k-ft	As Provided >= As,min (Section 9.6.1.2)
Location of maximum on span	8.845 ft	1.820 in^2 >= 0.925 in^2 OK
Span # where maximum occurs	Span # 3	

Maximum Deflection

Max Downward Transient Deflection	0.015 in	Ratio = 12451 >=360.0 L Only
Max Upward Transient Deflection	-0.003 in	Ratio = 29383 >=360.0 Lr Only
Max Downward Total Deflection	0.164 in	Ratio = 1116 >=240.0 Span: 3 : +D+0.750Lr+0.750L
Max Upward Total Deflection	-0.029 in	Ratio = 2665 >=240.0 Span: 3 : +D+0.750Lr+0.750L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	17.430	33.225	33.225	17.430
Max Upward from Load Combinations	17.430	33.225	33.225	17.430
Max Upward from Load Cases	13.749	26.223	26.223	13.749
D Only	13.749	26.223	26.223	13.749
+D+L	15.022	28.650	28.650	15.022
+D+Lr	17.382	33.134	33.134	17.382
+D+0.750Lr+0.750L	17.430	33.225	33.225	17.430
+D+0.750L	14.703	28.043	28.043	14.703
+0.60D	8.158	15.825	15.825	8.158
Lr Only	3.632	6.913	6.913	3.632
L Only	1.274	2.426	2.426	1.274

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	13.749	3.632	1.274				
Support #2	26.223	6.913	2.426				
Support #3	26.223	6.913	2.426				
Support #4	13.749	3.632	1.274				

Shear Stirrup Requirements

Between 0.00 to 4.68 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 4.78 to 7.93 ft, Stirrups are not required.

Between 8.03 to 14.95 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 15.05 to 15.15 ft, use #3 x 2-leg stirrups spaced at 8 in (Reqd Vs per 22.5.8.1)

Between 15.25 to 16.85 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 16.90 to 20.10 ft, Stirrups are not required.

Between 20.15 to 21.71 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 21.75 to 21.95 ft, use #3 x 2-leg stirrups spaced at 8 in (Reqd Vs per 22.5.8.1)

Between 22.06 to 28.97 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Between 29.07 to 32.22 ft, Stirrups are not required.

Between 32.32 to 36.90 ft, use #3 x 2-leg stirrups spaced at 9 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination		Location (ft)	Bending Stress Results (k-ft)		
Segment	Span #	along Beam	Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	15.250	75.21	133.18	0.56
Span # 2	2	6.500	-70.78	133.18	0.53
Span # 3	3	15.250	75.21	133.18	0.56
+1.40D					
Span # 1	1	15.250	61.41	133.18	0.46
Span # 2	2	6.500	-57.79	133.18	0.43
Span # 3	3	15.250	61.41	133.18	0.46
+1.20D+0.50Lr+1.60L					
Span # 1	1	15.250	64.92	133.18	0.49

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-10

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
Span # 2	2	6.500	-61.10	133.18	0.46
Span # 3	3	15.250	64.92	133.18	0.49
+1.20D+1.60L					
Span # 1	1	15.250	59.13	133.18	0.44
Span # 2	2	6.500	-55.65	133.18	0.42
Span # 3	3	15.250	59.13	133.18	0.44
+1.20D+1.60Lr+L					
Span # 1	1	15.250	75.21	133.18	0.56
Span # 2	2	6.500	-70.78	133.18	0.53
Span # 3	3	15.250	75.21	133.18	0.56
+1.20D+1.60Lr					
Span # 1	1	15.250	71.15	133.18	0.53
Span # 2	2	6.500	-66.96	133.18	0.50
Span # 3	3	15.250	71.15	133.18	0.53
+1.20D+L					
Span # 1	1	15.250	56.70	133.18	0.43
Span # 2	2	6.500	-53.36	133.18	0.40
Span # 3	3	15.250	56.70	133.18	0.43
+1.20D					
Span # 1	1	15.250	52.64	133.18	0.40
Span # 2	2	6.500	-49.54	133.18	0.37
Span # 3	3	15.250	52.64	133.18	0.40
+1.20D+0.50Lr+L					
Span # 1	1	15.250	62.48	133.18	0.47
Span # 2	2	6.500	-58.80	133.18	0.44
Span # 3	3	15.250	62.48	133.18	0.47
+0.90D					
Span # 1	1	15.250	39.48	133.18	0.30
Span # 2	2	6.500	-37.15	133.18	0.28
Span # 3	3	15.250	39.48	133.18	0.30

Overall Maximum Deflections

Span	Load Combination	Max. "-" Location		Load Combination	Max. "+" Location in	
		Defl (in) in Span	(ft)		Defl (in) in Span	(ft)
1	+D+0.750Lr+0.750L	0.1638	7.015	+D+0.750Lr+0.750L	-0.0024	15.380
2	+D+0.750Lr+0.750L	0.0065	6.805	+D+0.750Lr+0.750L	-0.0293	3.250
3	+D+0.750Lr+0.750L	0.1638	8.235		0.0000	3.250

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-11**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

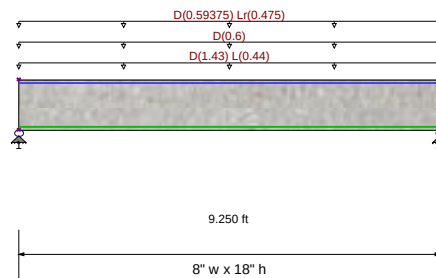
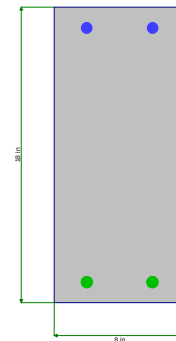
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Values:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
f_y - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 18.0 in

Span #1 Reinforcing....

2-#5 at 1.250 in from Top, from 0.0 to 9.250 ft in this span

2-#6 at 1.250 in from Bottom, from 0.0 to 9.250 ft in this

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.0 ft, (2ND FL)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 23.750 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.775 : 1
Section used for this span		Typical Section
Mu : Applied		48.369 k-ft
ϕ Mn : Allowable		62.441 k-ft
Location of maximum on span		4.617 ft
Span # where maximum occurs		Span # 1

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.02234 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
0.880 in^2 >= 0.763 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.006 in	Ratio = 17225 >= 360.0	L Only
Max Upward Transient Deflection	0.000 in	Ratio = 0 < 360.0	Lr Only
Max Downward Total Deflection	0.112 in	Ratio = 994 >= 240.0	Span: 1 : +D+0.750Lr+0.750L
Max Upward Total Deflection	0.000 in	Ratio = 0 < 240.0	Span: 1 : +D+0.750Lr+0.750L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	15.979	15.979
Max Upward from Load Combinations	15.979	15.979

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-11**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from Load Cases	12.805	12.805
D Only	12.805	12.805
+D+L	14.840	14.840
+D+Lr	15.002	15.002
+D+0.750Lr+0.750L	15.979	15.979
+D+0.750L	14.332	14.332
+0.60D	7.683	7.683
Lr Only	2.197	2.197
L Only	2.035	2.035

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	12.805	2.197	2.035				
Support #2	12.805	2.197	2.035				

Shear Stirrup Requirements

Between 0.00 to 3.40 ft, use #3 x 2-leg stirrups spaced at 8 in (Max spacing per 9.7.6.2.2)

Between 3.42 to 5.83 ft, Stirrups are not required.

Between 5.85 to 9.23 ft, use #3 x 2-leg stirrups spaced at 8 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mnx	Stress Ratio
MAXIMUM BENDING Envelope					
Span # 1	1	9.250	48.37	62.44	0.77
+1.40D					
Span # 1	1	9.250	41.46	62.44	0.66
+1.20D+0.50Lr+1.60L					
Span # 1	1	9.250	45.60	62.44	0.73
+1.20D+1.60L					
Span # 1	1	9.250	43.06	62.44	0.69
+1.20D+1.60Lr+L					
Span # 1	1	9.250	48.37	62.44	0.77
+1.20D+1.60Lr					
Span # 1	1	9.250	43.66	62.44	0.70
+1.20D+L					
Span # 1	1	9.250	40.24	62.44	0.64
+1.20D					
Span # 1	1	9.250	35.54	62.44	0.57
+1.20D+0.50Lr+L					
Span # 1	1	9.250	42.78	62.44	0.69
+0.90D					
Span # 1	1	9.250	26.65	62.44	0.43

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+0.750Lr+0.750L	0.1116	4.625		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-12 (REV 021226)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

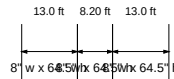
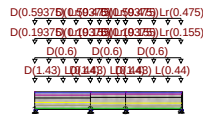
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 64.50 in

Span #1 Reinforcing...

2-#6 at 2.250 in from Top, from 0.0 to 13.0 ft in this span
 2-#5 at 12.0 in from Top, from 0.0 to 13.0 ft in this span
 2-#5 at 24.0 in from Bottom, from 0.0 to 13.0 ft in this span

2-#6 at 2.250 in from Bottom, from 0.0 to 13.0 ft in this span
 2-#5 at 24.0 in from Top, from 0.0 to 13.0 ft in this span
 2-#5 at 12.0 in from Bottom, from 0.0 to 13.0 ft in this span

Span #2 Reinforcing...

2-#6 at 2.250 in from Top, from 0.0 to 8.20 ft in this span
 2-#5 at 10.0 in from Top, from 0.0 to 8.20 ft in this span
 2-#5 at 20.0 in from Bottom, from 0.0 to 8.20 ft in this span

2-#6 at 2.250 in from Bottom, from 0.0 to 8.20 ft in this span
 2-#5 at 20.0 in from Top, from 0.0 to 8.20 ft in this span
 2-#5 at 10.0 in from Bottom, from 0.0 to 8.20 ft in this span

Span #3 Reinforcing...

2-#6 at 2.250 in from Top, from 0.0 to 13.0 ft in this span
 2-#5 at 10.0 in from Top, from 0.0 to 13.0 ft in this span
 2-#5 at 20.0 in from Bottom, from 0.0 to 13.0 ft in this span

2-#6 at 2.250 in from Bottom, from 0.0 to 13.0 ft in this span
 2-#5 at 20.0 in from Top, from 0.0 to 13.0 ft in this span
 2-#5 at 10.0 in from Bottom, from 0.0 to 13.0 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.0 ft, (2ND FL)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 7.750 ft, (LOW ROOF)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 23.750 ft, (HIGH ROOF)

Load for Span Number 2

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.0 ft, (2ND FL)

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 7.750 ft, (LOW ROOF)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 23.750 ft, (HIGH ROOF)

Load for Span Number 3

Uniform Load : D = 0.130, L = 0.040 ksf, Tributary Width = 11.0 ft, (2ND FL)

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-12 (REV 021226)**Applied Loads**

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

Uniform Load : D = 0.060 ksf, Tributary Width = 10.0 ft, (WALL)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 7.750 ft, (LOW ROOF)

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 23.750 ft, (HIGH ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio = 0.147 : 1		Design Limits	
Section used for this span	Typical Section	Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
Mu : Applied	81.139 k-ft	0.02005 in / in >= 0.00507 in / in	OK
φ Mn : Allowable	551.36 k-ft	As Provided >= As,min (Section 9.6.1.2)	
Location of maximum on span	7.540 ft	2.120 in^2 >= 0.459 in^2	OK
Span # where maximum occurs	Span # 3		

Maximum Deflection

Max Downward Transient Deflection	0.000 in	Ratio = 0 < 360.0	L Only
Max Upward Transient Deflection	0.000 in	Ratio = 0 < 360.0	Lr Only
Max Downward Total Deflection	0.003 in	Ratio = 52995 >= 240.0	Span: 3 : +D+0.750Lr+0.750L
Max Upward Total Deflection	0.000 in	Ratio = 0 < 240.0	Span: 3 : +D+0.750Lr+0.750L

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	22.583	48.204	48.204	22.583
Max Upward from Load Combinations	22.583	48.204	48.204	22.583
Max Upward from Load Cases	18.205	38.859	38.859	18.205
D Only	18.205	38.859	38.859	18.205
+D+L	20.606	43.982	43.982	20.606
+D+Lr	21.642	46.195	46.195	21.642
+D+0.750Lr+0.750L	22.583	48.204	48.204	22.583
+D+0.750L	20.006	42.701	42.701	20.006
+0.60D	10.923	23.315	23.315	10.923
Lr Only	3.437	7.336	7.336	3.437
L Only	2.400	5.124	5.124	2.400

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	18.205	3.437	2.400				
Support #2	38.859	7.336	5.124				
Support #3	38.859	7.336	5.124				
Support #4	18.205	3.437	2.400				

Shear Stirrup Requirements

Between 0.00 to 3.03 ft, use #3 x 2-leg stirrups spaced at 20 in (Max spacing per 9.7.6.2.2)

Between 3.12 to 7.80 ft, Stirrups are not required.

Between 7.89 to 14.64 ft, use #3 x 2-leg stirrups spaced at 20 in (Max spacing per 9.7.6.2.2)

Between 14.69 to 19.51 ft, Stirrups are not required.

Between 19.56 to 26.31 ft, use #3 x 2-leg stirrups spaced at 20 in (Max spacing per 9.7.6.2.2)

Between 26.40 to 31.08 ft, Stirrups are not required.

Between 31.17 to 34.11 ft, use #3 x 2-leg stirrups spaced at 20 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
Segment			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	13.000	81.14	551.94	0.15
Span # 2	2	8.200	-74.04	551.36	0.13
Span # 3	3	13.000	81.14	551.36	0.15
+1.40D					
Span # 1	1	13.000	69.52	551.94	0.13
Span # 2	2	8.200	-63.44	551.36	0.12
Span # 3	3	13.000	69.52	551.36	0.13
+1.20D+0.50Lr+1.60L					
Span # 1	1	13.000	74.76	551.94	0.14
Span # 2	2	8.200	-68.21	551.36	0.12

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 2B-12 (REV 021226)

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
Span # 3	3	13.000	74.76	551.36	0.14
+1.20D+1.60L					
Span # 1	1	13.000	70.07	551.94	0.13
Span # 2	2	8.200	-63.94	551.36	0.12
Span # 3	3	13.000	70.07	551.36	0.13
+1.20D+1.60Lr+L					
Span # 1	1	13.000	81.14	551.94	0.15
Span # 2	2	8.200	-74.04	551.36	0.13
Span # 3	3	13.000	81.14	551.36	0.15
+1.20D+1.60Lr					
Span # 1	1	13.000	74.59	551.94	0.14
Span # 2	2	8.200	-68.06	551.36	0.12
Span # 3	3	13.000	74.59	551.36	0.14
+1.20D+L					
Span # 1	1	13.000	66.14	551.94	0.12
Span # 2	2	8.200	-60.35	551.36	0.11
Span # 3	3	13.000	66.14	551.36	0.12
+1.20D					
Span # 1	1	13.000	59.59	551.94	0.11
Span # 2	2	8.200	-54.38	551.36	0.10
Span # 3	3	13.000	59.59	551.36	0.11
+1.20D+0.50Lr+L					
Span # 1	1	13.000	70.83	551.94	0.13
Span # 2	2	8.200	-64.63	551.36	0.12
Span # 3	3	13.000	70.83	551.36	0.13
+0.90D					
Span # 1	1	13.000	44.69	551.94	0.08
Span # 2	2	8.200	-40.78	551.36	0.07
Span # 3	3	13.000	44.69	551.36	0.08

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+0.750Lr+0.750L	0.0029	5.980	+D+0.750Lr+0.750L	-0.0001	13.164
2	+D+0.750Lr+0.750L	0.0001	8.460	+D+0.750Lr+0.750L	-0.0007	4.100
3	+D+0.750Lr+0.750L	0.0029	7.020		0.0000	4.100

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RB-1 (CRITICAL CONDITION)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

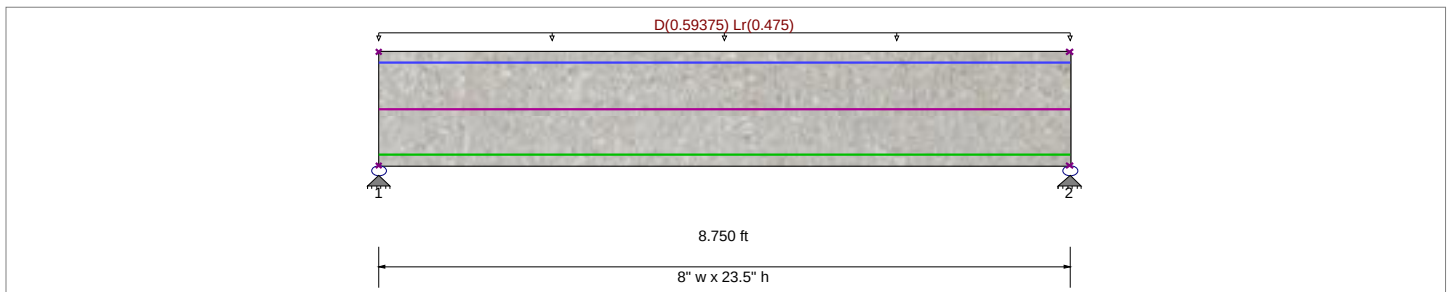
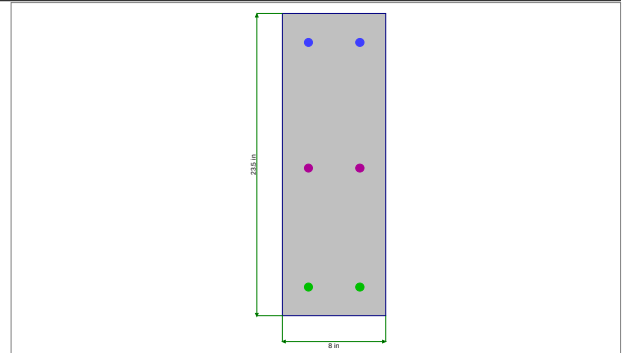
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 23.50 in

Span #1 Reinforcing....

2-#5 at 2.250 in from Top, from 0.0 to 8.750 ft in this span

2-#5 at 2.250 in from Bottom, from 0.0 to 8.750 ft in this

2-#5 at 11.50 in from Bottom, from 0.0 to 8.750 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 23.750 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.194 : 1
Section used for this span		Typical Section
Mu : Applied		16.266 k-ft
ϕ Mn : Allowable		83.830 k-ft
Location of maximum on span		4.367 ft
Span # where maximum occurs		Span # 1

Design Limits

Tensile Strain >= Min Strain Limit	(Section 9.3.3.1)
0.01616 in / in >= 0.00507 in / in	OK
As Provided >= As,min	(Section 9.6.1.2)
1.240 in^2 >= 0.270 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.002 in	Ratio = 45286	>=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio = 0	<360.0	Lr Only
Max Downward Total Deflection	0.006 in	Ratio = 17098	>=240.0	Span: 1 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio = 0	<240.0	Span: 1 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	5.504	5.504
Max Upward from Load Combinations	5.504	5.504
Max Upward from Load Cases	3.426	3.426

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RB-1 (CRITICAL CONDITION)**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
D Only	3.426	3.426
+D+Lr	5.504	5.504
+D+0.750Lr	4.984	4.984
+0.60D	2.056	2.056
Lr Only	2.078	2.078

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	3.426	2.078					
Support #2	3.426	2.078					

Shear Stirrup Requirements

Between 0.00 to 1.15 ft, use #3 x 2-leg stirrups spaced at 8 in (Max spacing per 9.7.6.2.2)

Between 1.16 to 7.59 ft, Stirrups are not required.

Between 7.60 to 8.73 ft, use #3 x 2-leg stirrups spaced at 8 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	8.750	16.27	83.83	0.19
+1.40D					
Span # 1	1	8.750	10.49	83.83	0.13
+1.20D+0.50Lr					
Span # 1	1	8.750	11.27	83.83	0.13
+1.20D					
Span # 1	1	8.750	8.99	83.83	0.11
+1.20D+1.60Lr					
Span # 1	1	8.750	16.27	83.83	0.19
+0.90D					
Span # 1	1	8.750	6.74	83.83	0.08

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.0061	4.375		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RB-1 (2 SPANS)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

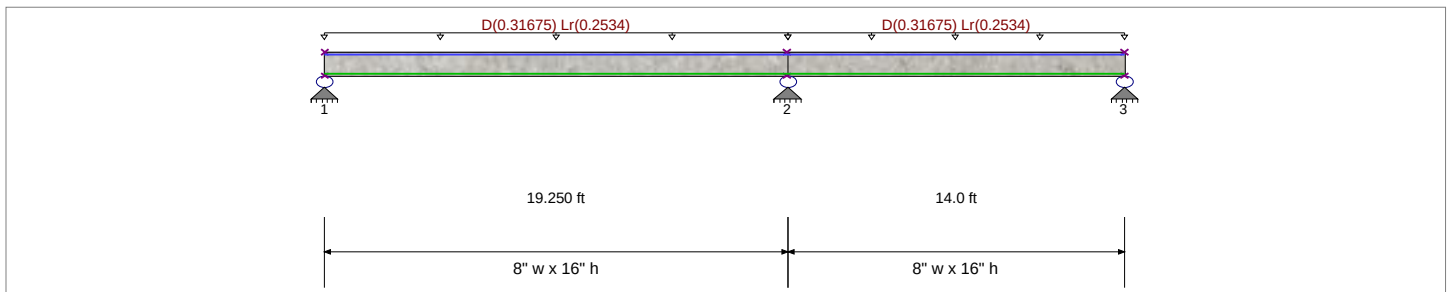
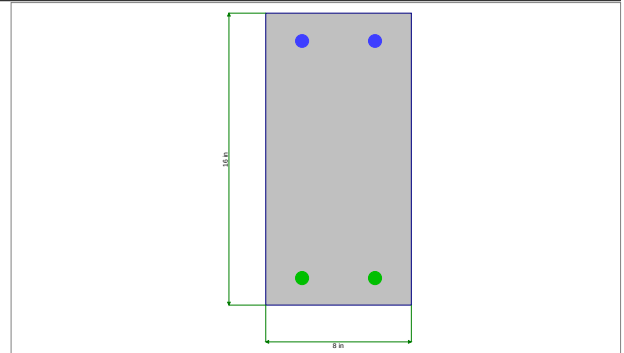
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 16.0 in

Span #1 Reinforcing....

2-#6 at 1.50 in from Top, from 0.0 to 19.25 ft in this span

2-#6 at 1.50 in from Bottom, from 0.0 to 19.25 ft in this span

Span #2 Reinforcing....

2-#6 at 1.50 in from Top, from 0.0 to 14.0 ft in this span

2-#6 at 1.50 in from Bottom, from 0.0 to 14.0 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 12.670 ft, (ROOF)

Load for Span Number 2

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 12.670 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.657 : 1
Section used for this span		Typical Section
Mu : Applied		-34.913 k-ft
ϕ Mn : Allowable		53.172 k-ft
Location of maximum on span		0.000 ft
Span # where maximum occurs		Span # 2

Design Limits

Tensile Strain >= Min Strain Limit	(Section 9.3.3.1)
0.01861 in / in >= 0.00507 in / in	OK
As Provided >= As,min	(Section 9.6.1.2)
0.880 in^2 >= 0.636 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.049 in	Ratio =	4673	>=360.0	Lr Only
Max Upward Transient Deflection	-0.003 in	Ratio =	66125	>=360.0	Lr Only
Max Downward Total Deflection	0.287 in	Ratio =	804	>=240.0	Span: 2 : +D+Lr
Max Upward Total Deflection	-0.017 in	Ratio =	9822	>=240.0	Span: 2 : +D+Lr

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RB-1 (2 SPANS)**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	5.402	14.772	3.069
Max Upward from Load Combinations	5.402	14.772	3.069
Max Upward from Load Cases	3.445	9.413	1.959
D Only	3.445	9.413	1.959
+D+Lr	5.402	14.772	3.069
+D+0.750Lr	4.912	13.434	2.791
+0.60D	2.076	5.626	1.188
Lr Only	1.962	5.345	1.119

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	3.445	1.962					
Support #2	9.413	5.345					
Support #3	1.959	1.119					

Shear Stirrup Requirements

Between 0.00 to 2.59 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Between 2.67 to 12.73 ft, Stirrups are not required.

Between 12.81 to 23.82 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Between 23.88 to 33.19 ft, Stirrups are not required.

Maximum Forces & Stresses for Load Combinations

Load Combination	Location (ft)	Bending Stress Results (k-ft)		
Segment	Span # along Beam	Mu : Max	φ Mnx	Stress Ratio
MAXimum BENDING Envelope				
Span # 1	1 19.250	-34.06	53.17	0.64
Span # 2	2 14.000	-34.91	53.17	0.66
+1.40D				
Span # 1	1 19.250	-22.60	53.17	0.43
Span # 2	2 14.000	-23.17	53.17	0.44
+1.20D+0.50Lr				
Span # 1	1 19.250	-23.96	53.17	0.45
Span # 2	2 14.000	-24.56	53.17	0.46
+1.20D				
Span # 1	1 19.250	-19.37	53.17	0.36
Span # 2	2 14.000	-19.86	53.17	0.37
+1.20D+1.60Lr				
Span # 1	1 19.250	-34.06	53.17	0.64
Span # 2	2 14.000	-34.91	53.17	0.66
+0.90D				
Span # 1	1 19.250	-14.53	53.17	0.27
Span # 2	2 14.000	-14.89	53.17	0.28

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.2871	8.525	+D+Lr	-0.0032	19.450
2	+D+Lr	0.0078	10.200	+D+Lr	-0.0171	2.200

Concrete Beam

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RB-2 (CRITICAL LOAD)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

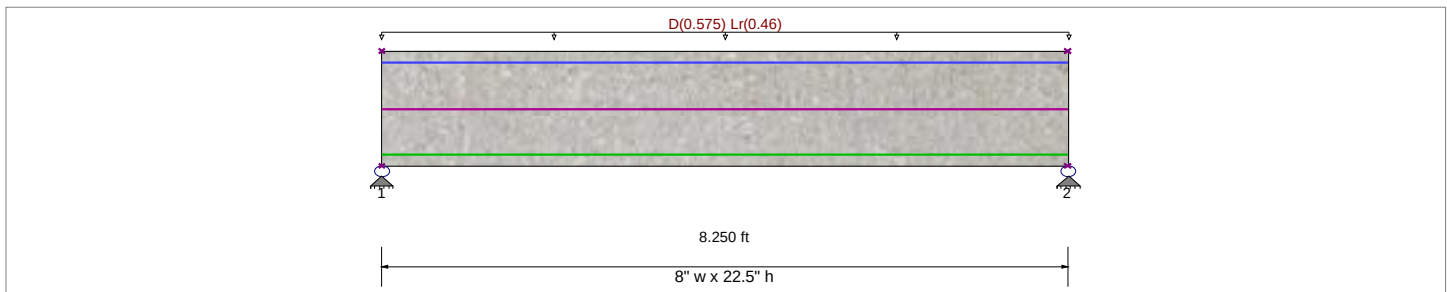
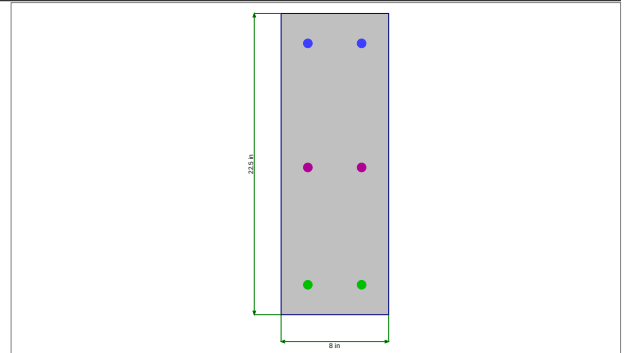
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 8.0 in, Height = 22.50 in

Span #1 Reinforcing....

2-#5 at 2.250 in from Top, from 0.0 to 8.250 ft in this span
 2-#5 at 11.0 in from Bottom, from 0.0 to 8.250 ft in this span

2-#5 at 2.250 in from Bottom, from 0.0 to 8.250 ft in this

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 23.0 ft, (ROOF)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.176	: 1
Section used for this span		Typical Section	
Mu : Applied		13.983	k-ft
ϕ Mn : Allowable		79.645	k-ft
Location of maximum on span		4.133	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit	(Section 9.3.3.1)
0.01512 in / in >= 0.00507 in / in	OK
As Provided >= As,min	(Section 9.6.1.2)
1.240 in^2 >= 0.243 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.002 in	Ratio = 48967	>=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio = 0	<360.0	Lr Only
Max Downward Total Deflection	0.005 in	Ratio = 18520	>=240.0	Span: 1 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio = 0	<240.0	Span: 1 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	5.017	5.017
Max Upward from Load Combinations	5.017	5.017
Max Upward from Load Cases	3.120	3.120

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RB-2 (CRITICAL LOAD)**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
D Only	3.120	3.120
+D+Lr	5.017	5.017
+D+0.750Lr	4.543	4.543
+0.60D	1.872	1.872
Lr Only	1.898	1.898

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	3.120	1.898					
Support #2	3.120	1.898					

Shear Stirrup Requirements

Between 0.00 to 0.95 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Between 0.96 to 7.29 ft, Stirrups are not required.

Between 7.30 to 8.23 ft, use #3 x 2-leg stirrups spaced at 7 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	8.250	13.98	79.65	0.18
+1.40D					
Span # 1	1	8.250	9.01	79.65	0.11
+1.20D+0.50Lr					
Span # 1	1	8.250	9.68	79.65	0.12
+1.20D					
Span # 1	1	8.250	7.72	79.65	0.10
+1.20D+1.60Lr					
Span # 1	1	8.250	13.98	79.65	0.18
+0.90D					
Span # 1	1	8.250	5.79	79.65	0.07

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.0053	4.125		0.0000	0.000

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RKB-2**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combination Set : ASCE 7-22 / IBC 2024

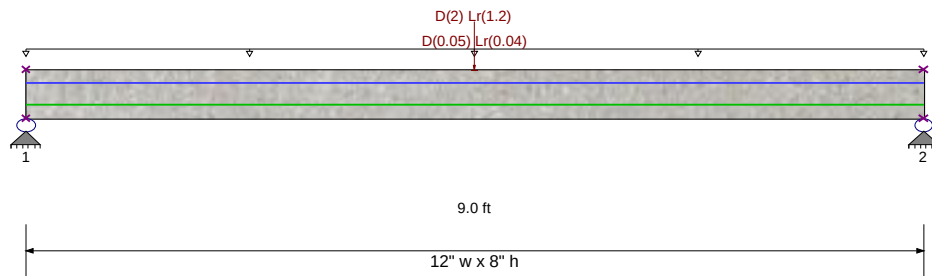
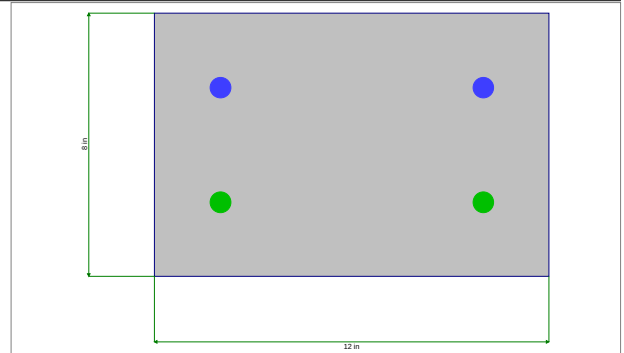
*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information

f'_c	=	3.0 ksi	ϕ : Phi Value:	Flexure :	0.90
$f_r = 7.5 * \lambda * f'_c^{1/2}$	=	410.792 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	60.0 ksi
fy - Main Rebar	=	60.0	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
		Number of Resisting Legs Per Stirrup	=	=	2

Seismic Design Category = A

**Cross Section & Reinforcing Details**

Rectangular Section, Width = 12.0 in, Height = 8.0 in

Span #1 Reinforcing....

2-#5 at 2.250 in from Top, from 0.0 to 9.0 ft in this span

2-#5 at 2.250 in from Bottom, from 0.0 to 9.0 ft in this span

Beam self weight calculated and added to loads**Load for Span Number 1**

Uniform Load : D = 0.0250, Lr = 0.020 ksf, Tributary Width = 2.0 ft, (ROOF)

Point Load : D = 2.0, Lr = 1.20 k @ 4.50 ft, (RIDGE BEAM)

DESIGN SUMMARY**Design OK**

Maximum Bending Stress Ratio	=	0.805	: 1
Section used for this span		Typical Section	
Mu : Applied		12.132	k-ft
ϕ Mn : Allowable		15.063	k-ft
Location of maximum on span		4.492	ft
Span # where maximum occurs		Span # 1	

Design Limits

Tensile Strain >= Min Strain Limit (Section 9.3.3.1)	
0.00626 in / in >= 0.00507 in / in	OK
As Provided >= As,min (Section 9.6.1.2)	
1.240 in^2 >= 0.558 in^2	OK

Maximum Deflection

Max Downward Transient Deflection	0.024 in	Ratio =	4461	>=360.0	Lr Only
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0	Lr Only
Max Downward Total Deflection	0.261 in	Ratio =	414	>=240.0	Span: 1 : +D+Lr
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	Span: 1 : +D+Lr

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.440	2.440
Max Upward from Load Combinations	2.440	2.440
Max Upward from Load Cases	1.660	1.660

Concrete Beam

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: RKB-2**Vertical Reactions**

Support notation : Far left is #1

Load Combination	Support 1	Support 2
D Only	1.660	1.660
+D+Lr	2.440	2.440
+D+0.750Lr	2.245	2.245
+0.60D	0.996	0.996
Lr Only	0.780	0.780

Extreme Reactions

Values in KIPS

Support	D	Lr	L	S	W	E	H
Support #1	1.660	0.780					
Support #2	1.660	0.780					

Shear Stirrup Requirements

Entire Beam Span Length : use #3 x 2-leg stirrups spaced at 2 in (Max spacing per 9.7.6.2.2)

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	φ Mn _x	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	9.000	12.13	15.06	0.81
+1.40D					
Span # 1	1	9.000	8.37	15.06	0.56
+1.20D+0.50Lr					
Span # 1	1	9.000	8.72	15.06	0.58
+1.20D					
Span # 1	1	9.000	7.17	15.06	0.48
+1.20D+1.60Lr					
Span # 1	1	9.000	12.13	15.06	0.81
+0.90D					
Span # 1	1	9.000	5.38	15.06	0.36

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl (in) in Span	Location (ft)	Load Combination	Max. "+" Defl (in) in Span	Location (ft)
1	+D+Lr	0.2605	4.500		0.0000	0.000

Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-6 (CRITICAL LOADING)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : AISC 360-16

Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General Information

Steel Section Name : HSS5x5x3/8

Analysis Method : Allowable Strength

Steel Stress Grade

Fy : Steel Yield 36.0 ksi

E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 13.87 ft

Top & Bottom Fixity Top & Bottom Pinned

Brace condition :

Unbraced Length for buckling ABOUT X-X Axis = 13.87 ft, K = 1.0

Unbraced Length for buckling ABOUT Y-Y Axis = 13.87 ft, K = 1.0

Applied Loads

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

Column self weight included : 310.272 lbs * Dead Load Factor

AXIAL LOADS . . .

2B-6: Axial Load at 13.870 ft, D = 41.010, L = 11.920 k

DESIGN SUMMARY**Bending & Shear Check Results****PASS** Max. Axial+Bending Stress Ratio = 0.6064 : 1

Load Combination

+D+L

Location of max.above base

0.0 ft

At maximum location values are . . .

Pa : Axial 53.240 k

Pn / Omega : Allowable 87.792 k

Ma-x : Applied 0.0 k-ft

Mn-x / Omega : Allowable 19.042 k-ft

Ma-y : Applied 0.0 k-ft

Mn-y / Omega : Allowable 19.042 k-ft

Maximum Load Reactions . .

Top along X-X 0.0 k

Bottom along X-X 0.0 k

Top along Y-Y 0.0 k

Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .Along Y-Y 0.0 in at 0.0ft above base
for load combination : L/Along X-X 0.0 in at 0.0ft above base
for load combination : L/**PASS** Maximum Shear Stress Ratio 0.0 : 1

Load Combination

0.0

Location of max.above base

0.0 ft

At maximum location values are . . .

Va : Applied 0.0 k

Vn / Omega : Allowable 0.0 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios		
	Stress Ratio	Status	Location					Stress Ratio	Status	Location

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Extreme Reactions

Item	Extreme Value	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
		@ Base		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
------------------	--------------------------	----------	--------------------------	----------

Steel Section Properties : HSS5x5x3/8**Steel Section Properties : HSS5x5x3/8**

Steel Column

Project File: MILO - 041525.ec6

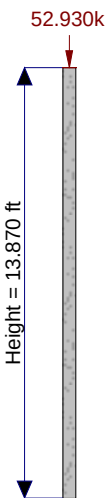
LIC# : KW-06017089, Build:20.26.05.05 ALEX KONDRAT & ASSOCIATES INC (c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-6 (CRITICAL LOADING)

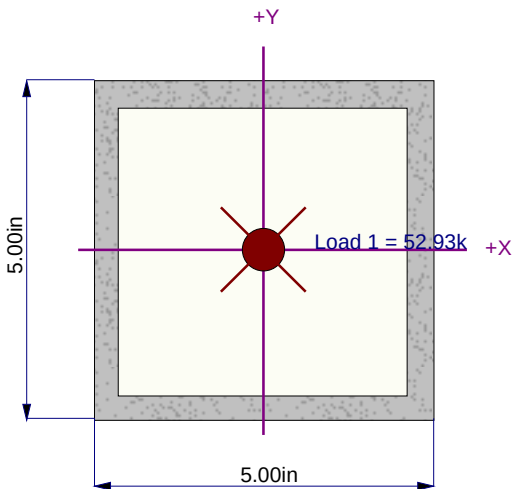
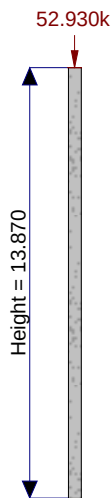
Depth	=	5.000 in	I xx	=	21.70 in^4	J	=	36.100 in^4
Design Thick	=	0.349 in	S xx	=	8.68 in^3			
Width	=	5.000 in	R xx	=	1.870 in			
Wall Thick	=	0.375 in	Zx	=	10.600 in^3			
Area	=	6.180 in^2	I yy	=	21.700 in^4	C	=	14.900 in^3
Weight	=	22.370 plf	S yy	=	8.680 in^3			
			R yy	=	1.870 in			
Ycg	=	0.000 in						

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis



Steel Column

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-6/2B-5**Code References**

Governing Code : IBC 2018, CBC 2019
 Referenced Design Standard(s) : AISC 360-16
 Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General Information

Steel Section Name : **HSS5x5x3/8**
 Analysis Method : Allowable Strength
 Steel Stress Grade
 Fy : Steel Yield 36.0 ksi
 E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 14 ft
 Top & Bottom Fixity Top & Bottom Pinned
 Brace condition :
 Unbraced Length for buckling ABOUT X-X Axis = 14 ft, K = 1.0
 Unbraced Length for buckling ABOUT Y-Y Axis = 14 ft, K = 1.0

Applied Loads

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

Column self weight included : 313.180 lbs * Dead Load Factor

AXIAL LOADS . . .

2B-6/2B-5: Axial Load at 14.0 ft, D = 50.890, L = 14.210 k

DESIGN SUMMARY**Bending & Shear Check Results**

PASS Max. Axial+Bending Stress Ratio = **0.7510** : 1
 Load Combination +D+L
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Pa : Axial 65.413 k
 Pn / Omega : Allowable 87.105 k
 Ma-x : Applied 0.0 k-ft
 Mn-x / Omega : Allowable 19.042 k-ft
 Ma-y : Applied 0.0 k-ft
 Mn-y / Omega : Allowable 19.042 k-ft

Maximum Load Reactions . .
 Top along X-X 0.0 k
 Bottom along X-X 0.0 k
 Top along Y-Y 0.0 k
 Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .
 Along Y-Y 0.0 in at 0.0ft above base L/
 for load combination :
 Along X-X 0.0 in at 0.0ft above base L/
 for load combination :

PASS Maximum Shear Stress Ratio **0.0** : 1
 Load Combination 0.0
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Va : Applied 0.0 k
 Vn / Omega : Allowable 0.0 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios		
	Stress Ratio	Status	Location					Stress Ratio	Status	Location

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Extreme Reactions

Item	Extreme Value	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
------------------	--------------------------	----------	--------------------------	----------

Steel Section Properties : HSS5x5x3/8**Steel Section Properties : HSS5x5x3/8**

Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

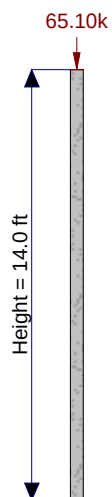
(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-6/2B-5

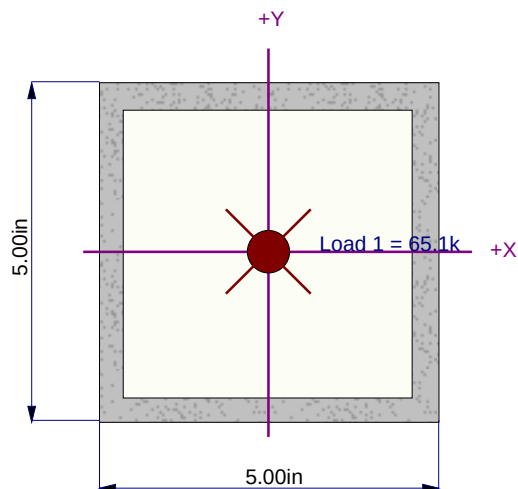
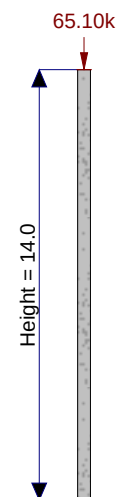
Depth	=	5.000 in	I _{xx}	=	21.70 in ⁴	J	=	36.100 in ⁴
Design Thick	=	0.349 in	S _{xx}	=	8.68 in ³			
Width	=	5.000 in	R _{xx}	=	1.870 in			
Wall Thick	=	0.375 in	Z _x	=	10.600 in ³			
Area	=	6.180 in ²	I _{yy}	=	21.700 in ⁴	C	=	14.900 in ³
Weight	=	22.370 plf	S _{yy}	=	8.680 in ³			
			R _{yy}	=	1.870 in			
Y _{cg}	=	0.000 in						

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis



Steel Column

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-8 MASTER (CRITICAL LOAD)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : AISC 360-16

Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General Information

Steel Section Name : HSS5x5x3/8

Analysis Method : Allowable Strength

Steel Stress Grade

Fy : Steel Yield 36.0 ksi

E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 13.50 ft

Top & Bottom Fixity Top & Bottom Pinned

Brace condition :

Unbraced Length for buckling ABOUT X-X Axis = 13.50 ft, K = 1.0

Unbraced Length for buckling ABOUT Y-Y Axis = 13.50 ft, K = 1.0

Applied Loads

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

Column self weight included : 301.995 lbs * Dead Load Factor

AXIAL LOADS . . .

2B-8 SUPPORT 3: Axial Load at 13.50 ft, D = 42.190, LR = 5.520, L = 5.810 k

DESIGN SUMMARY**Bending & Shear Check Results****PASS** Max. Axial+Bending Stress Ratio = 0.5682 : 1

Load Combination +D+0.750Lr+0.750L

Location of max.above base 0.0 ft

At maximum location values are . . .

Pa : Axial 50.990 k

Pn / Omega : Allowable 89.740 k

Ma-x : Applied 0.0 k-ft

Mn-x / Omega : Allowable 19.042 k-ft

Ma-y : Applied 0.0 k-ft

Mn-y / Omega : Allowable 19.042 k-ft

Maximum Load Reactions . .

Top along X-X 0.0 k

Bottom along X-X 0.0 k

Top along Y-Y 0.0 k

Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .Along Y-Y 0.0 in at 0.0ft above base
for load combination : L/Along X-X 0.0 in at 0.0ft above base
for load combination : L/**PASS** Maximum Shear Stress Ratio 0.0 : 1

Load Combination 0.0

Location of max.above base 0.0 ft

At maximum location values are . . .

Va : Applied 0.0 k

Vn / Omega : Allowable 0.0 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios		
	Stress Ratio	Status	Location					Stress Ratio	Status	Location

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Extreme Reactions

Item	Extreme Value	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
------------------	--------------------------	----------	--------------------------	----------

Steel Section Properties : HSS5x5x3/8**Steel Section Properties : HSS5x5x3/8**

Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

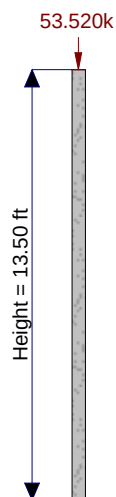
(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-8 MASTER (CRITICAL LOAD)

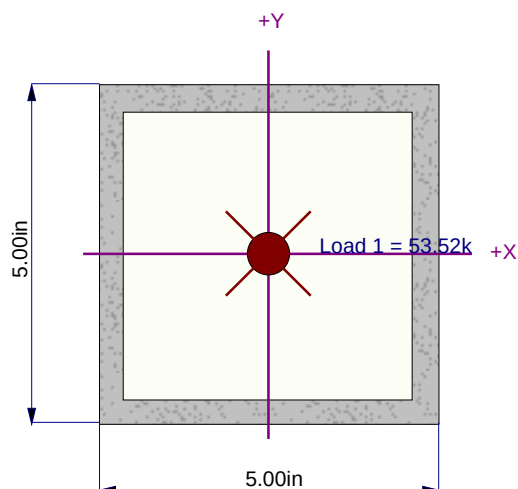
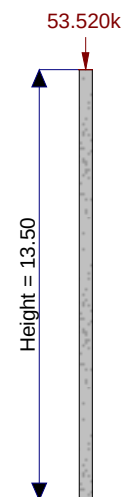
Depth	=	5.000 in	I _{xx}	=	21.70 in ⁴	J	=	36.100 in ⁴
Design Thick	=	0.349 in	S _{xx}	=	8.68 in ³			
Width	=	5.000 in	R _{xx}	=	1.870 in			
Wall Thick	=	0.375 in	Z _x	=	10.600 in ³			
Area	=	6.180 in ²	I _{yy}	=	21.700 in ⁴	C	=	14.900 in ³
Weight	=	22.370 plf	S _{yy}	=	8.680 in ³			
			R _{yy}	=	1.870 in			
Y _{cg}	=	0.000 in						

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis



Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-10 (CRITICAL LOAD)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : AISC 360-16

Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General InformationSteel Section Name : **HSS5x5x3/8**

Analysis Method : Allowable Strength

Steel Stress Grade

Fy : Steel Yield 36.0 ksi

E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 13.50 ft

Top & Bottom Fixity Top & Bottom Pinned

Brace condition :

Unbraced Length for buckling ABOUT X-X Axis = 13.50 ft, K = 1.0

Unbraced Length for buckling ABOUT Y-Y Axis = 13.50 ft, K = 1.0

Applied Loads

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

Column self weight included : 301.995 lbs * Dead Load Factor

AXIAL LOADS . . .

2B-10 CRITICAL LOAD: Axial Load at 13.50 ft, D = 26.360, LR = 6.910, L = 2.430 k

2B4: Axial Load at 13.50 ft, D = 13.590, L = 3.710 k

DESIGN SUMMARY**Bending & Shear Check Results****PASS** Max. Axial+Bending Stress Ratio = **0.5576** : 1

Load Combination +D+0.750Lr+0.750L

Location of max.above base 0.0 ft

At maximum location values are . . .

Pa : Axial 50.040 k

Pn / Omega : Allowable 89.740 k

Ma-x : Applied 0.0 k-ft

Mn-x / Omega : Allowable 19.042 k-ft

Ma-y : Applied 0.0 k-ft

Mn-y / Omega : Allowable 19.042 k-ft

Maximum Load Reactions . .

Top along X-X 0.0 k

Bottom along X-X 0.0 k

Top along Y-Y 0.0 k

Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .Along Y-Y 0.0 in at 0.0ft above base
for load combination : L/Along X-X 0.0 in at 0.0ft above base
for load combination : L/**PASS** Maximum Shear Stress Ratio **0.0** : 1

Load Combination 0.0

Location of max.above base 0.0 ft

At maximum location values are . . .

Va : Applied 0.0 k

Vn / Omega : Allowable 0.0 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Cb _x	Cb _y	K _x L _x /R _x	K _y L _y /R _y	Maximum Shear Ratios		
	Stress Ratio	Status	Location					Stress Ratio	Status	Location

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Extreme Reactions

Item	Extreme Value	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
		@ Base		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
------------------	--------------------------	----------	--------------------------	----------

Steel Section Properties : HSS5x5x3/8**Steel Section Properties : HSS5x5x3/8**

Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

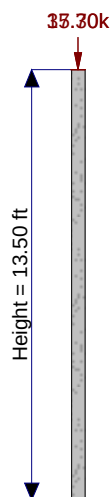
(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC2 @ 2B-10 (CRITICAL LOAD)

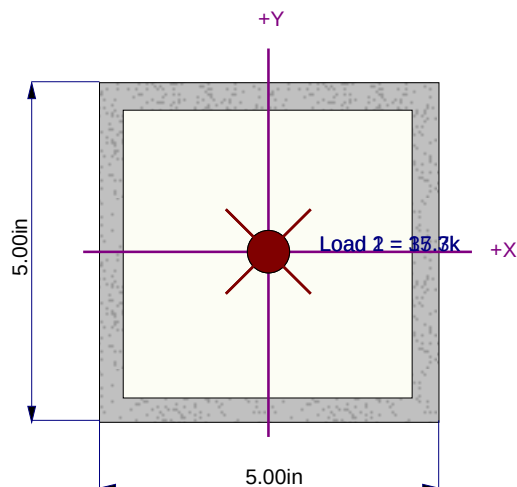
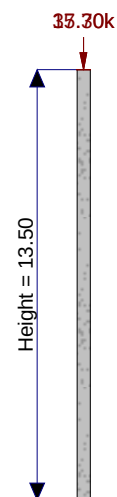
Depth	=	5.000 in	I _{xx}	=	21.70 in ⁴	J	=	36.100 in ⁴
Design Thick	=	0.349 in	S _{xx}	=	8.68 in ³			
Width	=	5.000 in	R _{xx}	=	1.870 in			
Wall Thick	=	0.375 in	Z _x	=	10.600 in ³			
Area	=	6.180 in ²	I _{yy}	=	21.700 in ⁴	C	=	14.900 in ³
Weight	=	22.370 plf	S _{yy}	=	8.680 in ³			
			R _{yy}	=	1.870 in			
Y _{cg}	=	0.000 in						

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis



Steel Column

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC1 @ 2B-9 (CRITICAL LOAD)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : AISC 360-16

Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General Information

Steel Section Name : HSS4x4x1/2

Analysis Method : Allowable Strength

Steel Stress Grade

Fy : Steel Yield 36.0 ksi

E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 13.80 ft

Top & Bottom Fixity Top & Bottom Pinned

Brace condition :

Unbraced Length for buckling ABOUT X-X Axis = 13.80 ft, K = 1.0

Unbraced Length for buckling ABOUT Y-Y Axis = 13.80 ft, K = 1.0

Applied Loads

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

Column self weight included : 298.494 lbs * Dead Load Factor

AXIAL LOADS . . .

2B-9 CRITICAL LOAD: Axial Load at 13.80 ft, D = 33.890, L = 9.140 k

DESIGN SUMMARY**Bending & Shear Check Results****PASS** Max. Axial+Bending Stress Ratio =**0.6902** : 1**Maximum Load Reactions . .**

Load Combination

+D+L

Top along X-X

0.0 k

Location of max.above base

0.0 ft

Bottom along X-X

0.0 k

At maximum location values are . . .

Top along Y-Y

0.0 k

Pa : Axial

43.328 k

Bottom along Y-Y

0.0 k

Pn / Omega : Allowable

62.779 k

Maximum Load Deflections . . .

Ma-x : Applied

0.0 k-ft

Along Y-Y

0.0 in at

0.0ft above base

Mn-x / Omega : Allowable

13.832 k-ft

for load combination :

L/

Ma-y : Applied

0.0 k-ft

Along X-X

0.0 in at

0.0ft above base

Mn-y / Omega : Allowable

13.832 k-ft

for load combination :

L/

PASS Maximum Shear Stress Ratio**0.0** : 1

Load Combination

0.0

Location of max.above base

0.0 ft

At maximum location values are . . .

Va : Applied

0.0 k

Vn / Omega : Allowable

0.0 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios		
	Stress Ratio	Status	Location					Stress Ratio	Status	Location

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Extreme Reactions

Item	Extreme Value	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
------------------	--------------------------	----------	--------------------------	----------

Steel Section Properties : HSS4x4x1/2**Steel Section Properties : HSS4x4x1/2**

Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

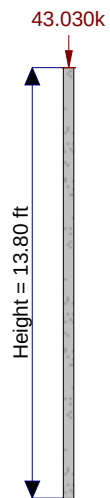
(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC1 @ 2B-9 (CRITICAL LOAD)

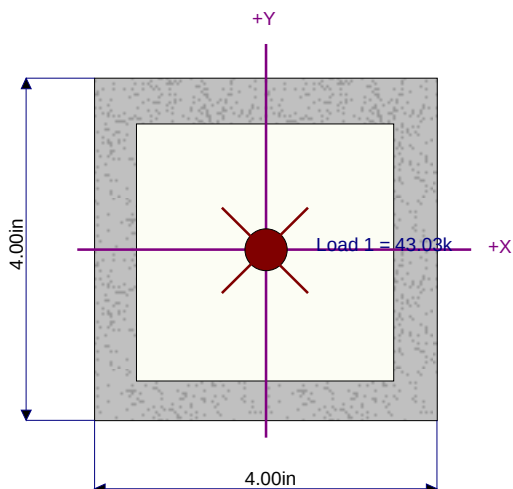
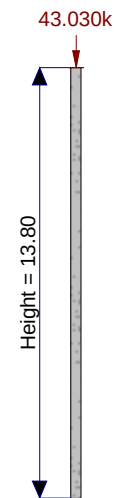
Depth	=	4.000 in	I xx	=	11.90 in ⁴	J	=	21.000 in ⁴
Design Thick	=	0.465 in	S xx	=	5.97 in ³			
Width	=	4.000 in	R xx	=	1.410 in			
Wall Thick	=	0.500 in	Zx	=	7.700 in ³			
Area	=	6.020 in ²	I yy	=	11.900 in ⁴	C	=	11.200 in ³
Weight	=	21.630 plf	S yy	=	5.970 in ³			
			R yy	=	1.410 in			
Ycg	=	0.000 in						

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis



Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC1 @ 2B-4 (CRITICAL LOAD)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : AISC 360-16

Load Combinations Used : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General Information

Steel Section Name : HSS4x4x1/2

Analysis Method : Allowable Strength

Steel Stress Grade

Fy : Steel Yield 36.0 ksi

E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 13.330 ft

Top & Bottom Fixity Top & Bottom Pinned

Brace condition :

Unbraced Length for buckling ABOUT X-X Axis = 13.330 ft, K = 1.0

Unbraced Length for buckling ABOUT Y-Y Axis = 13.330 ft, K = 1.0

Applied Loads

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

Column self weight included : 288.328 lbs * Dead Load Factor

AXIAL LOADS . . .

2B-4 CRITICAL LOAD: Axial Load at 13.330 ft, D = 32.220, L = 9.010 k

DESIGN SUMMARY**Bending & Shear Check Results****PASS** Max. Axial+Bending Stress Ratio = 0.630 : 1

Load Combination

Location of max.above base

At maximum location values are . . .

Pa : Axial 41.518 k

Pn / Omega : Allowable 65.907 k

Ma-x : Applied 0.0 k-ft

Mn-x / Omega : Allowable 13.832 k-ft

Ma-y : Applied 0.0 k-ft

Mn-y / Omega : Allowable 13.832 k-ft

Maximum Load Reactions . .

Top along X-X 0.0 k

Bottom along X-X 0.0 k

Top along Y-Y 0.0 k

Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .Along Y-Y 0.0 in at 0.0ft above base
for load combination : L/Along X-X 0.0 in at 0.0ft above base
for load combination : L/**PASS** Maximum Shear Stress Ratio 0.0 : 1

Load Combination

Location of max.above base

At maximum location values are . . .

Va : Applied 0.0 k

Vn / Omega : Allowable 0.0 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios		
	Stress Ratio	Status	Location					Stress Ratio	Status	Location

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Extreme Reactions

Item	Extreme Value	Axial (k)		Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
		@ Base		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
------------------	--------------------------	----------	--------------------------	----------

Steel Section Properties : HSS4x4x1/2**Steel Section Properties : HSS4x4x1/2**

Steel Column

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

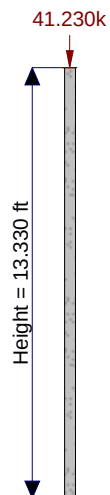
(c) ENERCALC, LLC 1982-2026

DESCRIPTION: SC1 @ 2B-4 (CRITICAL LOAD)

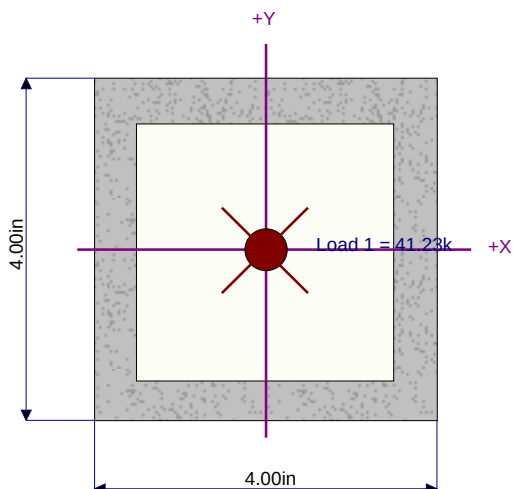
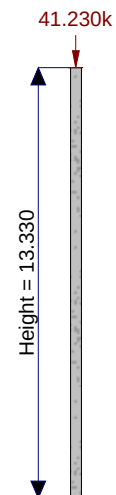
Depth	=	4.000 in	I xx	=	11.90 in ⁴	J	=	21.000 in ⁴
Design Thick	=	0.465 in	S xx	=	5.97 in ³			
Width	=	4.000 in	R xx	=	1.410 in			
Wall Thick	=	0.500 in	Zx	=	7.700 in ³			
Area	=	6.020 in ²	I yy	=	11.900 in ⁴	C	=	11.200 in ³
Weight	=	21.630 plf	S yy	=	5.970 in ³			
			R yy	=	1.410 in			
Ycg	=	0.000 in						

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis



Steel Base Plate

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 11X11X3/4 STEEL BASE PLATE 1/4 CRITICAL LOAD @ SC2/2B6**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : AISC Design Guide # 1, AISC 360-16

Load Combination Set : ASCE 7-22 / IBC 2024

Rho (or Omega) = 1.00

General Information**Material Properties**

AISC Design Method 0.0

Steel Plate Fy = 36 ksi

Concrete Support f'c = 3 ksi

Assumed Bearing Area : Full Bearing

 Ω_c : ASD Safety Factor

2.5

Column & Plate**Column Properties**

Steel Section HSS4x4x1/2

Depth 4 in Area 6.02 in²Width 4 in Ixx in⁴Flange Thickness 0.465 in Iyy in⁴

Web Thickness in

Plate Dimensions

N : Length 11.0 in

B : Width 11.0 in

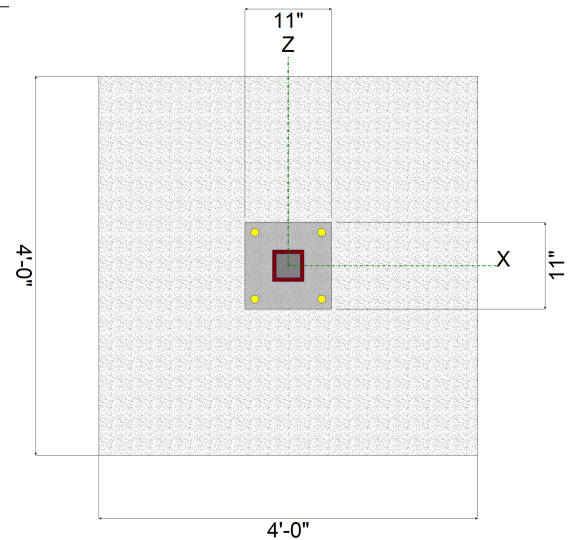
Thickness 0.750 in

Support Dimensions

Width along "X" 48.0 in

Length along "Z" 48.0 in

Column assumed welded to base plate

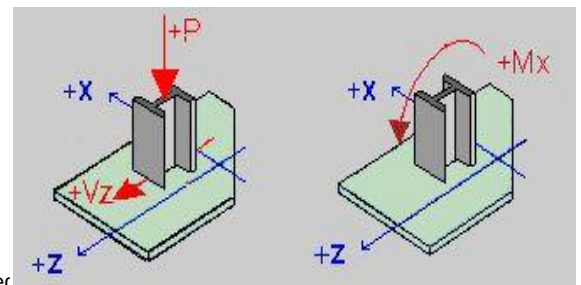
**Applied Loads**

	P-Y	V-Z	M-X
D : Dead Load	37.310 k	k	k-ft
L : Live	10.980 k	k	k-ft
Lr : Roof Live	k	k	k-ft
S : Snow	k	k	k-ft
W : Wind	k	k	k-ft
E : Earthquake	k	k	k-ft
H : Lateral Earth	k	k	k-ft

"P" = Gravity load, "+" sign is downward

Moments create higher soil pressure at +Z edge

"+" Shears push plate towards +Z edge

**Anchor Bolts**

Anchor Bolt or Rod Description 1 1/2"

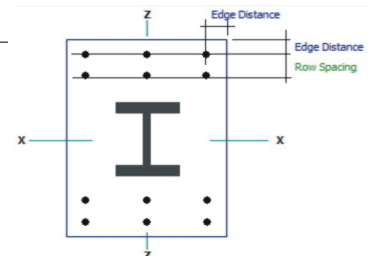
Max of Tension or Pullout Capacity..... k

Shear Capacity..... k

Edge distance : bolt to plate..... 1.25 in

Number of Bolts in each Row..... 2

Number of Bolt Rows..... 1



Steel Base Plate

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: 11X11X3/4 STEEL BASE PLATE 1/S4 CRTICAL LOAD @ SC2/2B6

GOVERNING DESIGN LOAD CASE SUMMARY

Plate Design Summary

Design Method	0.0
---------------	-----

Governing Load Combinat **0.0**

Governing Load Case Typ 0.0

Governing STRESS RATIO

Design Plate Size	0.0
-------------------	-----

Pa : Axial Load 0.0 k

Ma : Moment 0.0 k-ft

Ma : Max. Moment 0.0 k-in

fb : Max. Bending Stress 0.0 ksi

Fb : Allowable : 0.0 0.0 ksi

Bending Stress Ratio 0.0

Bending Stress OK

fu : Max. Concrete Bearing Stress 0.0 ksi

PHIBn : 0 ksi

Bearing Stress Ratio 0.0

Bearing Stress OK

Wall Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: WF18 (CRITICAL CONDITION)**DESIGN SUMMARY****Design OK**

Factor of Safety		Item	Applied	Capacity	Governing Load Combination
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
Utilization Ratio		Item	Applied	Capacity	Governing Load Combination
PASS	0.0	Soil Bearing	0.0 ksf	0.0 ksf	0.0
PASS	0.0	Z Flexure (+X)	0.0 k-ft	0.0 k-ft	No Moment
PASS	0.0	Z Flexure (-X)	0.0 k-ft	0.0 k-ft	No Moment
PASS	N/A	1-way Shear (+X)	N/A psi	0.0 psi	N/A
PASS	N/A	1-way Shear (-X)	N/A psi	0.0 psi	N/A

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Actual Soil Bearing Stress -X	+X	Actual / Allowable Ratio
--	-----------------	------	----------------------------------	----	-----------------------------

Overturning Stability

Units : k-ft

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
--	--------------------	------------------	-----------------	--------

Footing Has NO Overturning

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status
---	---------------	-----------------	---------------------	--------

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
---------------------------------	------------	-----------------	----------------------------	------------------	------------------	-------------------	----------------	--------

One Way Shear

Units : k

Load Combination...	vu @ -X	vu @ +X	vu:Max	Φ vn	vu / PHI vn	Status
---------------------	---------	---------	--------	-----------	-------------	--------

Wall Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: WF24 (CRITICAL CONDITION)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
AutoCalc Footing Weight as DL :	=	Yes

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Reference Depth below Surface	=	2.0 ft
Allow. Pressure Increase per foot of depth when base footing is below	=	ksf ft

Increases based on footing Width

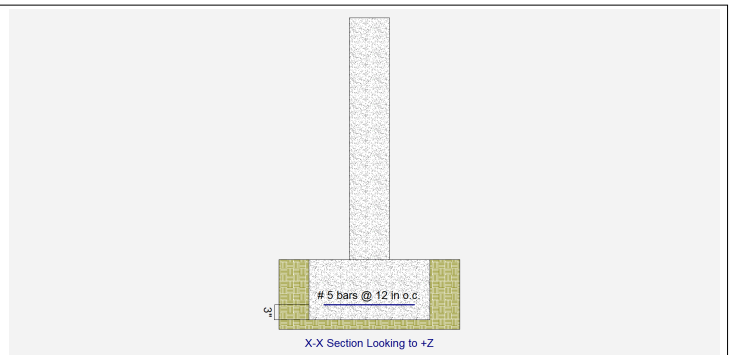
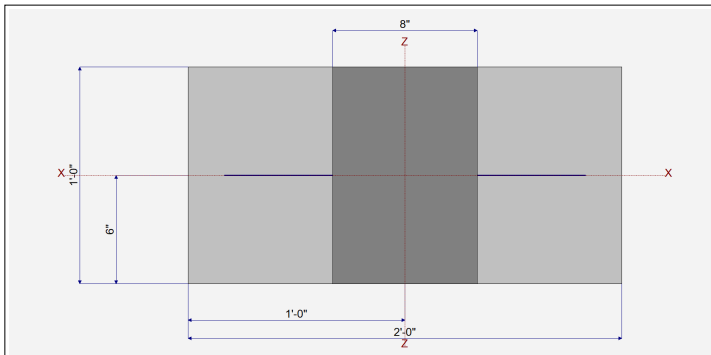
Allow. Pressure Increase per foot of width when footing is wider than	=	ksf ft
---	---	--------

Adjusted Allowable Bearing Pressure

= 0.0 ksf

Dimensions**Reinforcing**

Footing Width	=	2 ft	Footing Thickness	=	12.0 in	Bars along X-X Axis	
Wall Thickness	=	8.0 in	Rebar Centerline to Edge of Concrete...			Bar spacing	= 12.00
Wall center offset from center of footing	=	0 in	at Bottom of footing =	3.0 in		Reinforcing Bar Size	= # 5

**Applied Loads**

	D	Lr	L	S	W	E	H
P : Column Load	=	3.0	0.7360				k
OB : Overburden	=						ksf
V-x	=						k
M-zz	=						k-ft
Vx applied	=						in above top of footing

Wall Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: WF24 (CRITICAL CONDITION)**DESIGN SUMMARY****Design OK**

Factor of Safety		Item	Applied	Capacity	Governing Load Combination
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
Utilization Ratio		Item	Applied	Capacity	Governing Load Combination
PASS	0.0	Soil Bearing	0.0 ksf	0.0 ksf	0.0
PASS	0.0	Z Flexure (+X)	0.0 k-ft	0.0 k-ft	No Moment
PASS	0.0	Z Flexure (-X)	0.0 k-ft	0.0 k-ft	No Moment
PASS	N/A	1-way Shear (+X)	N/A psi	0.0 psi	N/A
PASS	N/A	1-way Shear (-X)	N/A psi	0.0 psi	N/A

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Actual Soil Bearing Stress -X	Actual Soil Bearing Stress +X	Actual / Allowable Ratio
-------------------------------------	-----------------	------	-------------------------------	-------------------------------	--------------------------

Overturning Stability

Units : k-ft

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
-------------------------------------	--------------------	------------------	-----------------	--------

Footing Has NO Overturning

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status
--	---------------	-----------------	---------------------	--------

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
---------------------------------	---------	--------------	-------------------------	---------------	---------------	----------------	-------------	--------

One Way Shear

Units : k

Load Combination...	vu @ -X	vu @ +X	vu:Max	Φ vn	vu / PHI vn	Status
---------------------	---------	---------	--------	-----------	-------------	--------

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-8**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

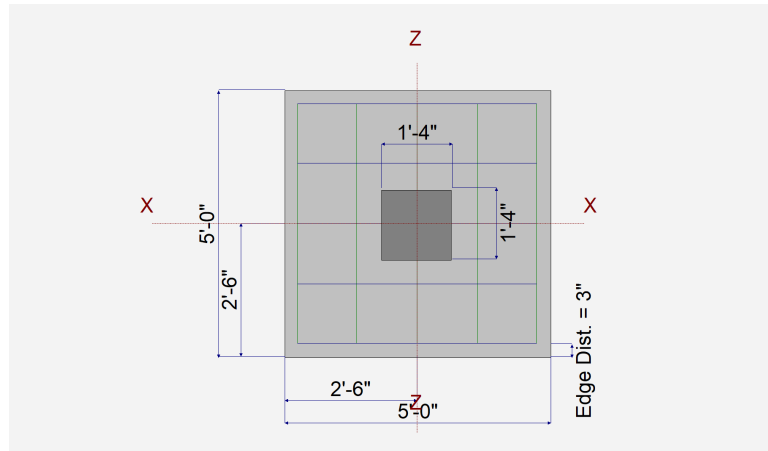
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	16.0 in
pz : parallel to Z-Z Axis	=	16.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing****Bars parallel to X-X Axis (resisting Z Flexure)**

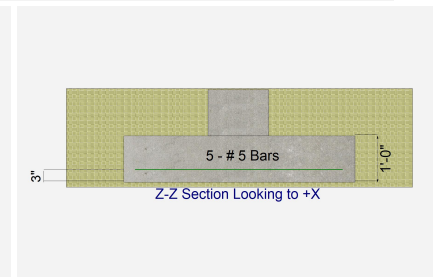
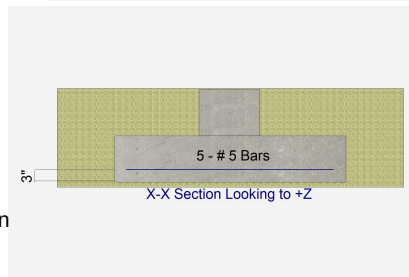
Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Rebar Centerline to Edge of Concrete... at Bottom of footing

= 3.0 in



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-8**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	42.190	8.520	5.810	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7883	Soil Bearing	2.365 ksf	3.0 ksf	+D+0.750Lr+0.750L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	16.386 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	16.386 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.3870	Z Flexure (+X) Bot Tens	4.694 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.3870	Z Flexure (-X) Bot Tens	4.694 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.3870	X Flexure (+Z) Bot Tens	4.694 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.3870	X Flexure (-Z) Bot Tens	4.694 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.6092	1-way Shear (+X)	28.451 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.6092	1-way Shear (-X)	28.451 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.6092	1-way Shear (+Z)	28.451 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.6092	1-way Shear (-Z)	28.451 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.3889	2-way Punching	63.907 psi	164.317 psi	+1.20D+1.60Lr+L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.935	1.935	n/a	n/a	0.645
X-X, +D+L	3.0	n/a	0.0	2.167	2.167	n/a	n/a	0.722
X-X, +D+Lr	3.0	n/a	0.0	2.276	2.276	n/a	n/a	0.759
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	2.365	2.365	n/a	n/a	0.788
X-X, +D+0.750L	3.0	n/a	0.0	2.109	2.109	n/a	n/a	0.703
X-X, +0.60D	3.0	n/a	0.0	1.161	1.161	n/a	n/a	0.387
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.935	1.935	0.645
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	2.167	2.167	0.722
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	2.276	2.276	0.759
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	2.365	2.365	0.788
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	2.109	2.109	0.703
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	1.161	1.161	0.387

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-8**Sliding Stability**

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
---	---------------	-----------------	-----------------	--------

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	3.952	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	3.952	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	4.298	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	4.298	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	4.012	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	4.012	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	4.694	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	4.694	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	4.304	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	4.304	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.778	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.778	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	3.387	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	3.387	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	4.064	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	4.064	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	3.583	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	3.583	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	2.540	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	2.540	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.952	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.952	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	4.298	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	4.298	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	4.012	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	4.012	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	4.694	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	4.694	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	4.304	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	4.304	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.778	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.778	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	3.387	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	3.387	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	4.064	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	4.064	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.583	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.583	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.540	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.540	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	23.95 psi	23.95 psi	23.95 psi	46.70 psi	0.51	OK
+1.20D+0.50Lr+1.60L	26.05 psi	26.05 psi	26.05 psi	46.70 psi	0.56	OK
+1.20D+1.60L	24.32 psi	24.32 psi	24.32 psi	46.70 psi	0.52	OK
+1.20D+1.60Lr+L	28.45 psi	28.45 psi	28.45 psi	46.70 psi	0.61	OK
+1.20D+1.60Lr	26.08 psi	26.08 psi	26.08 psi	46.70 psi	0.56	OK
+1.20D+L	22.90 psi	22.90 psi	22.90 psi	46.70 psi	0.49	OK
+1.20D	20.53 psi	20.53 psi	20.53 psi	46.70 psi	0.44	OK
+1.20D+0.50Lr+L	24.63 psi	24.63 psi	24.63 psi	46.70 psi	0.53	OK
+1.20D+0.50L	21.71 psi	21.71 psi	21.71 psi	46.70 psi	0.46	OK
+0.90D	15.40 psi	15.40 psi	15.40 psi	46.70 psi	0.33	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	23.95 psi	23.95 psi	23.95 psi	46.70 psi	0.51	OK
+1.20D+0.50Lr+1.60L	26.05 psi	26.05 psi	26.05 psi	46.70 psi	0.56	OK
+1.20D+1.60L	24.32 psi	24.32 psi	24.32 psi	46.70 psi	0.52	OK
+1.20D+1.60Lr+L	28.45 psi	28.45 psi	28.45 psi	46.70 psi	0.61	OK
+1.20D+1.60Lr	26.08 psi	26.08 psi	26.08 psi	46.70 psi	0.56	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-8**One Way Shear Z**

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D+L	22.90 psi	22.90 psi	22.90 psi	46.70 psi	0.49	OK
+1.20D	20.53 psi	20.53 psi	20.53 psi	46.70 psi	0.44	OK
+1.20D+0.50Lr+L	24.63 psi	24.63 psi	24.63 psi	46.70 psi	0.53	OK
+1.20D+0.50L	21.71 psi	21.71 psi	21.71 psi	46.70 psi	0.46	OK
+0.90D	15.40 psi	15.40 psi	15.40 psi	46.70 psi	0.33	OK

All units k

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	53.80 psi	164.32 psi	0.33	OK
+1.20D+0.50Lr+1.60L	58.52 psi	164.32 psi	0.36	OK
+1.20D+1.60L	54.62 psi	164.32 psi	0.33	OK
+1.20D+1.60Lr+L	63.91 psi	164.32 psi	0.39	OK
+1.20D+1.60Lr	58.59 psi	164.32 psi	0.36	OK
+1.20D+L	51.43 psi	164.32 psi	0.31	OK
+1.20D	46.12 psi	164.32 psi	0.28	OK
+1.20D+0.50Lr+L	55.33 psi	164.32 psi	0.34	OK
+1.20D+0.50L	48.77 psi	164.32 psi	0.30	OK
+0.90D	34.59 psi	164.32 psi	0.21	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC1/2B-9**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

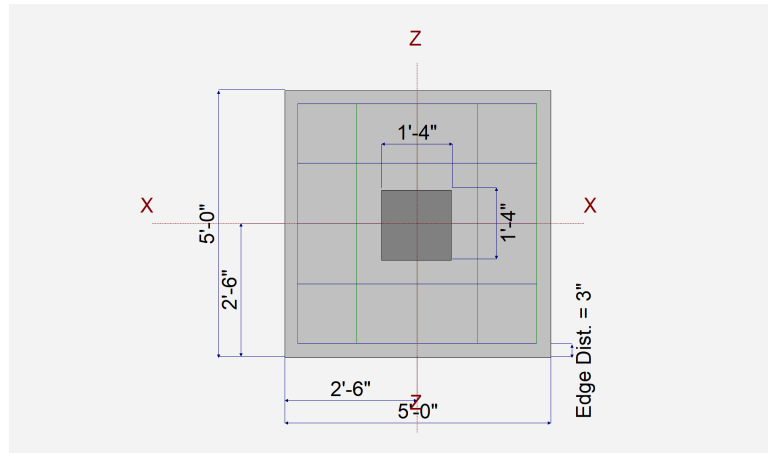
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	16.0 in
pz : parallel to Z-Z Axis	=	16.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing****Bars parallel to X-X Axis (resisting Z Flexure)**

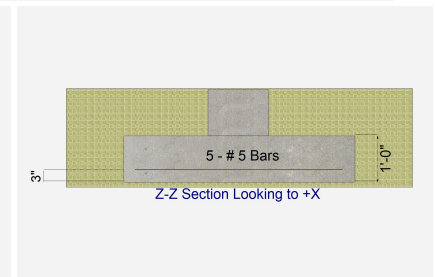
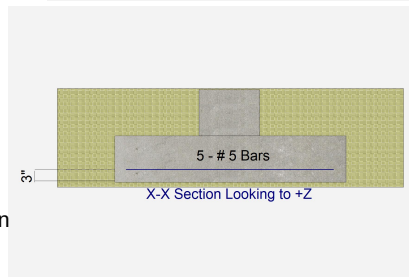
Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Rebar Centerline to Edge of Concrete... at Bottom of footing

= 3.0 in



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC1/2B-9**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	33.890	0.000	9.140	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.6560	Soil Bearing	1.968 ksf	3.0 ksf	+D+L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	13.896 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	13.896 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.3051	Z Flexure (+X) Bot Tens	3.701 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.3051	Z Flexure (-X) Bot Tens	3.701 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.3051	X Flexure (+Z) Bot Tens	3.701 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.3051	X Flexure (-Z) Bot Tens	3.701 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.4803	1-way Shear (+X)	22.431 psi	46.704 psi	+1.20D+1.60L
PASS	0.4803	1-way Shear (-X)	22.431 psi	46.704 psi	+1.20D+1.60L
PASS	0.4803	1-way Shear (+Z)	22.431 psi	46.704 psi	+1.20D+1.60L
PASS	0.4803	1-way Shear (-Z)	22.431 psi	46.704 psi	+1.20D+1.60L
PASS	0.3066	2-way Punching	50.384 psi	164.317 psi	+1.20D+1.60L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.603	1.603	n/a	n/a	0.534
X-X, +D+L	3.0	n/a	0.0	1.968	1.968	n/a	n/a	0.656
X-X, +D+0.750L	3.0	n/a	0.0	1.877	1.877	n/a	n/a	0.626
X-X, +0.60D	3.0	n/a	0.0	0.9617	0.9617	n/a	n/a	0.321
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.603	1.603	0.534
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	1.968	1.968	0.656
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	1.877	1.877	0.626
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.9617	0.9617	0.321

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC1/2B-9**Footing Flexure**

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in ²	Gvrn. As in ²	Actual As in ²	Phi*Mn k-ft	Status
X-X, +1.40D	3.171	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	3.171	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	3.701	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	3.701	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.332	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.332	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.718	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.718	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	3.025	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	3.025	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	2.038	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	2.038	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.171	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.171	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.701	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.701	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.332	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.332	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.718	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.718	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.025	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.025	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.038	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.038	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	19.22 psi	19.22 psi	19.22 psi	46.70 psi	0.41	OK
+1.20D+1.60L	22.43 psi	22.43 psi	22.43 psi	46.70 psi	0.48	OK
+1.20D+L	20.20 psi	20.20 psi	20.20 psi	46.70 psi	0.43	OK
+1.20D	16.47 psi	16.47 psi	16.47 psi	46.70 psi	0.35	OK
+1.20D+0.50L	18.34 psi	18.34 psi	18.34 psi	46.70 psi	0.39	OK
+0.90D	12.36 psi	12.36 psi	12.36 psi	46.70 psi	0.26	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	19.22 psi	19.22 psi	19.22 psi	46.70 psi	0.41	OK
+1.20D+1.60L	22.43 psi	22.43 psi	22.43 psi	46.70 psi	0.48	OK
+1.20D+L	20.20 psi	20.20 psi	20.20 psi	46.70 psi	0.43	OK
+1.20D	16.47 psi	16.47 psi	16.47 psi	46.70 psi	0.35	OK
+1.20D+0.50L	18.34 psi	18.34 psi	18.34 psi	46.70 psi	0.39	OK
+0.90D	12.36 psi	12.36 psi	12.36 psi	46.70 psi	0.26	OK

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	43.17 psi	164.32 psi	0.26	OK
+1.20D+1.60L	50.38 psi	164.32 psi	0.31	OK
+1.20D+L	45.37 psi	164.32 psi	0.28	OK
+1.20D	37.00 psi	164.32 psi	0.23	OK
+1.20D+0.50L	41.18 psi	164.32 psi	0.25	OK
+0.90D	27.75 psi	164.32 psi	0.17	OK

All units k

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC1/2B-4**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

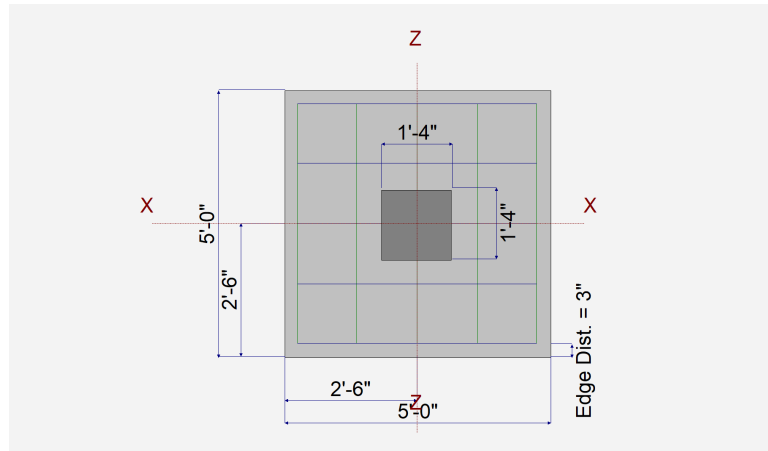
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	16.0 in
pz : parallel to Z-Z Axis	=	16.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing****Bars parallel to X-X Axis (resisting Z Flexure)**

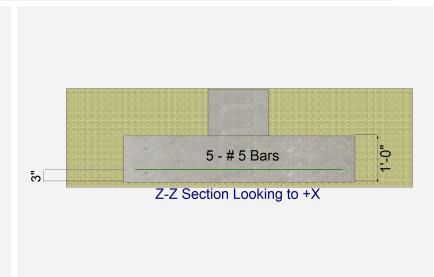
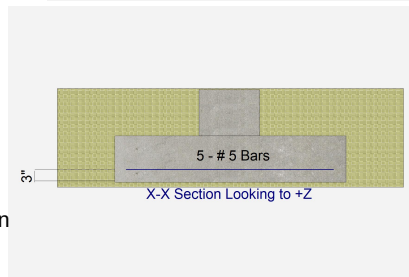
Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Rebar Centerline to Edge of Concrete... at Bottom of footing

= 3.0 in



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC1/2B-4**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	32.220	0.000	9.010	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.6320	Soil Bearing	1.896 ksf	3.0 ksf	+D+L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	13.395 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	13.395 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.2928	Z Flexure (+X) Bot Tens	3.552 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.2928	Z Flexure (-X) Bot Tens	3.552 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.2928	X Flexure (+Z) Bot Tens	3.552 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.2928	X Flexure (-Z) Bot Tens	3.552 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.4610	1-way Shear (+X)	21.530 psi	46.704 psi	+1.20D+1.60L
PASS	0.4610	1-way Shear (-X)	21.530 psi	46.704 psi	+1.20D+1.60L
PASS	0.4610	1-way Shear (+Z)	21.530 psi	46.704 psi	+1.20D+1.60L
PASS	0.4610	1-way Shear (-Z)	21.530 psi	46.704 psi	+1.20D+1.60L
PASS	0.2943	2-way Punching	48.359 psi	164.317 psi	+1.20D+1.60L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.536	1.536	n/a	n/a	0.512
X-X, +D+L	3.0	n/a	0.0	1.896	1.896	n/a	n/a	0.632
X-X, +D+0.750L	3.0	n/a	0.0	1.806	1.806	n/a	n/a	0.602
X-X, +0.60D	3.0	n/a	0.0	0.9216	0.9216	n/a	n/a	0.307
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.536	1.536	0.512
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	1.896	1.896	0.632
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	1.806	1.806	0.602
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.9216	0.9216	0.307

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC1/2B-4**Footing Flexure**

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in ²	Gvrn. As in ²	Actual As in ²	Phi*Mn k-ft	Status
X-X, +1.40D	3.014	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	3.014	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	3.552	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	3.552	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.189	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.189	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.583	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.583	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	2.886	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	2.886	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.937	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.937	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.014	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.014	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.552	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.552	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.189	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.189	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.583	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.583	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	2.886	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	2.886	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.937	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.937	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	18.27 psi	18.27 psi	18.27 psi	46.70 psi	0.39	OK
+1.20D+1.60L	21.53 psi	21.53 psi	21.53 psi	46.70 psi	0.46	OK
+1.20D+L	19.33 psi	19.33 psi	19.33 psi	46.70 psi	0.41	OK
+1.20D	15.66 psi	15.66 psi	15.66 psi	46.70 psi	0.34	OK
+1.20D+0.50L	17.49 psi	17.49 psi	17.49 psi	46.70 psi	0.37	OK
+0.90D	11.74 psi	11.74 psi	11.74 psi	46.70 psi	0.25	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	18.27 psi	18.27 psi	18.27 psi	46.70 psi	0.39	OK
+1.20D+1.60L	21.53 psi	21.53 psi	21.53 psi	46.70 psi	0.46	OK
+1.20D+L	19.33 psi	19.33 psi	19.33 psi	46.70 psi	0.41	OK
+1.20D	15.66 psi	15.66 psi	15.66 psi	46.70 psi	0.34	OK
+1.20D+0.50L	17.49 psi	17.49 psi	17.49 psi	46.70 psi	0.37	OK
+0.90D	11.74 psi	11.74 psi	11.74 psi	46.70 psi	0.25	OK

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	41.03 psi	164.32 psi	0.25	OK
+1.20D+1.60L	48.36 psi	164.32 psi	0.29	OK
+1.20D+L	43.41 psi	164.32 psi	0.26	OK
+1.20D	35.17 psi	164.32 psi	0.21	OK
+1.20D+0.50L	39.29 psi	164.32 psi	0.24	OK
+0.90D	26.38 psi	164.32 psi	0.16	OK

All units k

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ C12/2B-8**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

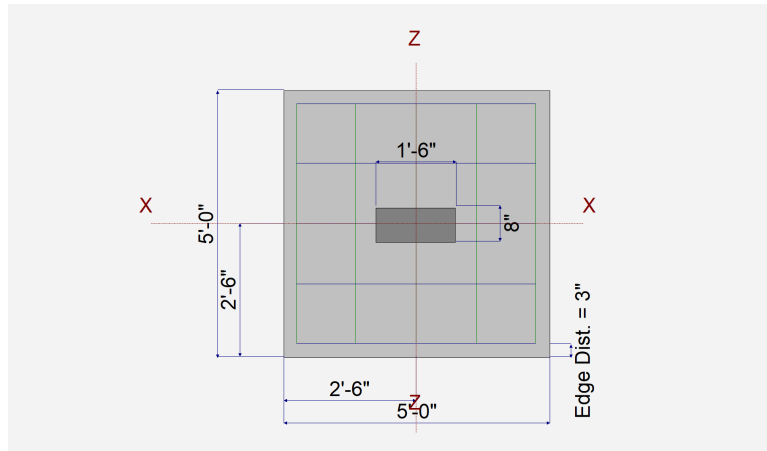
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	18.0 in
pz : parallel to Z-Z Axis	=	8.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing****Bars parallel to X-X Axis (resisting Z Flexure)**

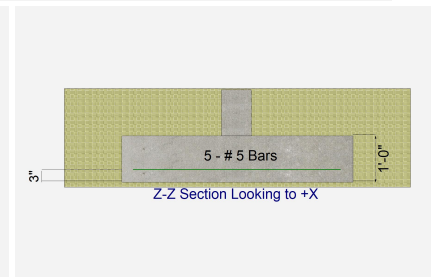
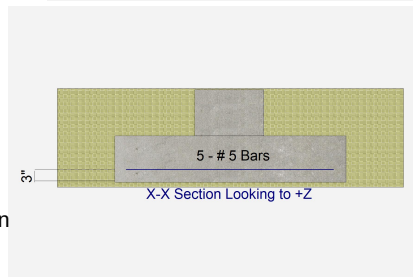
Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Rebar Centerline to Edge of Concrete... at Bottom of footing

= 3.0 in



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ C12/2B-8**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	18.140	3.470	2.430	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.3843	Soil Bearing	1.153 ksf	3.0 ksf	+D+0.750Lr+0.750L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	9.197 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	9.197 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1495	Z Flexure (+X) Bot Tens	1.814 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.1495	Z Flexure (-X) Bot Tens	1.814 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.2292	X Flexure (+Z) Bot Tens	2.781 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.2292	X Flexure (-Z) Bot Tens	2.781 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.2349	1-way Shear (+X)	10.970 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.2349	1-way Shear (-X)	10.970 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.3288	1-way Shear (+Z)	15.357 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.3288	1-way Shear (-Z)	15.357 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.2113	2-way Punching	32.789 psi	155.188 psi	+1.20D+1.60Lr+L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xeccc	Zeccc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	0.9762	0.9762	n/a	n/a	0.325
X-X, +D+L	3.0	n/a	0.0	1.073	1.073	n/a	n/a	0.358
X-X, +D+Lr	3.0	n/a	0.0	1.115	1.115	n/a	n/a	0.372
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	1.153	1.153	n/a	n/a	0.384
X-X, +D+0.750L	3.0	n/a	0.0	1.049	1.049	n/a	n/a	0.350
X-X, +0.60D	3.0	n/a	0.0	0.5857	0.5857	n/a	n/a	0.195
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	0.9762	0.9762	0.325
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	1.073	1.073	0.358
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.115	1.115	0.372
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	1.153	1.153	0.384
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	1.049	1.049	0.350
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.5857	0.5857	0.195

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ C12/2B-8**Sliding Stability**

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				
Footing Flexure				

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.370	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	2.370	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	2.559	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	2.559	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	2.396	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	2.396	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	2.781	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	2.781	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	2.553	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	2.553	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	2.259	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	2.259	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.031	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.031	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	2.422	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	2.422	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	2.145	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	2.145	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.523	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.523	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.546	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.546	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.670	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.670	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	1.563	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	1.563	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	1.814	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	1.814	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	1.665	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	1.665	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	1.474	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	1.474	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.325	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.325	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	1.580	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	1.580	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	1.40	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	1.40	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	0.9939	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	0.9939	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	9.35 psi	9.35 psi	9.35 psi	46.70 psi	0.20	OK
+1.20D+0.50Lr+1.60L	10.10 psi	10.10 psi	10.10 psi	46.70 psi	0.22	OK
+1.20D+1.60L	9.45 psi	9.45 psi	9.45 psi	46.70 psi	0.20	OK
+1.20D+1.60Lr+L	10.97 psi	10.97 psi	10.97 psi	46.70 psi	0.23	OK
+1.20D+1.60Lr	10.07 psi	10.07 psi	10.07 psi	46.70 psi	0.22	OK
+1.20D+L	8.91 psi	8.91 psi	8.91 psi	46.70 psi	0.19	OK
+1.20D	8.01 psi	8.01 psi	8.01 psi	46.70 psi	0.17	OK
+1.20D+0.50Lr+L	9.56 psi	9.56 psi	9.56 psi	46.70 psi	0.20	OK
+1.20D+0.50L	8.46 psi	8.46 psi	8.46 psi	46.70 psi	0.18	OK
+0.90D	6.01 psi	6.01 psi	6.01 psi	46.70 psi	0.13	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	13.09 psi	13.09 psi	13.09 psi	46.70 psi	0.28	OK
+1.20D+0.50Lr+1.60L	14.13 psi	14.13 psi	14.13 psi	46.70 psi	0.30	OK
+1.20D+1.60L	13.24 psi	13.24 psi	13.24 psi	46.70 psi	0.28	OK
+1.20D+1.60Lr+L	15.36 psi	15.36 psi	15.36 psi	46.70 psi	0.33	OK
+1.20D+1.60Lr	14.10 psi	14.10 psi	14.10 psi	46.70 psi	0.30	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ C12/2B-8**One Way Shear Z**

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D+L	12.48 psi	12.48 psi	12.48 psi	46.70 psi	0.27	OK
+1.20D	11.22 psi	11.22 psi	11.22 psi	46.70 psi	0.24	OK
+1.20D+0.50Lr+L	13.38 psi	13.38 psi	13.38 psi	46.70 psi	0.29	OK
+1.20D+0.50L	11.85 psi	11.85 psi	11.85 psi	46.70 psi	0.25	OK
+0.90D	8.41 psi	8.41 psi	8.41 psi	46.70 psi	0.18	OK

All units k

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	27.95 psi	155.19 psi	0.18	OK
+1.20D+0.50Lr+1.60L	30.18 psi	155.19 psi	0.19	OK
+1.20D+1.60L	28.26 psi	155.19 psi	0.18	OK
+1.20D+1.60Lr+L	32.79 psi	155.19 psi	0.21	OK
+1.20D+1.60Lr	30.10 psi	155.19 psi	0.19	OK
+1.20D+L	26.64 psi	155.19 psi	0.17	OK
+1.20D	23.95 psi	155.19 psi	0.15	OK
+1.20D+0.50Lr+L	28.56 psi	155.19 psi	0.18	OK
+1.20D+0.50L	25.30 psi	155.19 psi	0.16	OK
+0.90D	17.96 psi	155.19 psi	0.12	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-6 (CRITICAL LOAD)**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

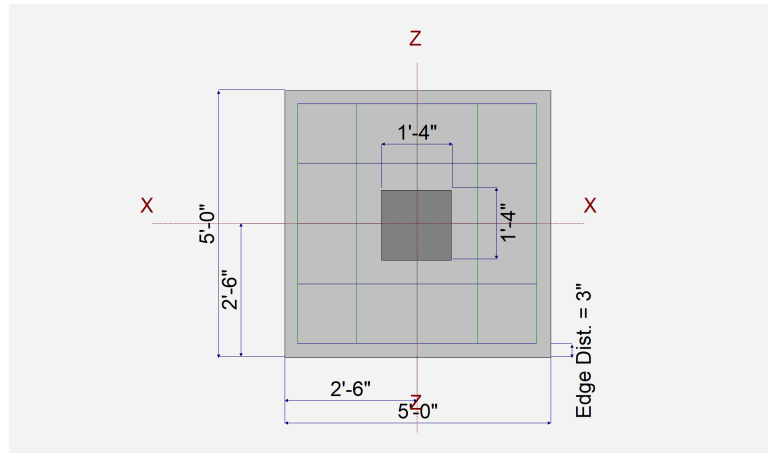
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	16.0 in
pz : parallel to Z-Z Axis	=	16.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing****Bars parallel to X-X Axis (resisting Z Flexure)**

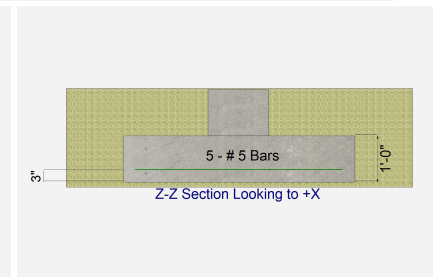
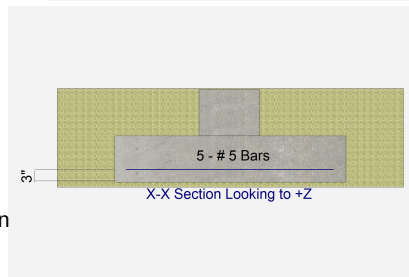
Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Rebar Centerline to Edge of Concrete... at Bottom of footing

= 3.0 in



General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-6 (CRITICAL LOAD)**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	37.310	0.000	10.980	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7263	Soil Bearing	2.179 ksf	3.0 ksf	+D+L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	14.922 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	14.922 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.3441	Z Flexure (+X) Bot Tens	4.175 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.3441	Z Flexure (-X) Bot Tens	4.175 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.3441	X Flexure (+Z) Bot Tens	4.175 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.3441	X Flexure (-Z) Bot Tens	4.175 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.5418	1-way Shear (+X)	25.302 psi	46.704 psi	+1.20D+1.60L
PASS	0.5418	1-way Shear (-X)	25.302 psi	46.704 psi	+1.20D+1.60L
PASS	0.5418	1-way Shear (+Z)	25.302 psi	46.704 psi	+1.20D+1.60L
PASS	0.5418	1-way Shear (-Z)	25.302 psi	46.704 psi	+1.20D+1.60L
PASS	0.3459	2-way Punching	56.833 psi	164.317 psi	+1.20D+1.60L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.740	1.740	n/a	n/a	0.580
X-X, +D+L	3.0	n/a	0.0	2.179	2.179	n/a	n/a	0.726
X-X, +D+0.750L	3.0	n/a	0.0	2.069	2.069	n/a	n/a	0.690
X-X, +0.60D	3.0	n/a	0.0	1.044	1.044	n/a	n/a	0.348
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.740	1.740	0.580
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	2.179	2.179	0.726
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	2.069	2.069	0.690
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	1.044	1.044	0.348

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-6 (CRITICAL LOAD)**Footing Flexure**

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in ²	Gvrn. As in ²	Actual As in ²	Phi*Mn k-ft	Status
X-X, +1.40D	3.493	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	3.493	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	4.175	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	4.175	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.732	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	3.732	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.994	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	2.994	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	3.363	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	3.363	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	2.245	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	2.245	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.493	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.493	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	4.175	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	4.175	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.732	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.732	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.994	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.994	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.363	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.363	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.245	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.245	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	21.17 psi	21.17 psi	21.17 psi	46.70 psi	0.45	OK
+1.20D+1.60L	25.30 psi	25.30 psi	25.30 psi	46.70 psi	0.54	OK
+1.20D+L	22.62 psi	22.62 psi	22.62 psi	46.70 psi	0.48	OK
+1.20D	18.15 psi	18.15 psi	18.15 psi	46.70 psi	0.39	OK
+1.20D+0.50L	20.38 psi	20.38 psi	20.38 psi	46.70 psi	0.44	OK
+0.90D	13.61 psi	13.61 psi	13.61 psi	46.70 psi	0.29	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	21.17 psi	21.17 psi	21.17 psi	46.70 psi	0.45	OK
+1.20D+1.60L	25.30 psi	25.30 psi	25.30 psi	46.70 psi	0.54	OK
+1.20D+L	22.62 psi	22.62 psi	22.62 psi	46.70 psi	0.48	OK
+1.20D	18.15 psi	18.15 psi	18.15 psi	46.70 psi	0.39	OK
+1.20D+0.50L	20.38 psi	20.38 psi	20.38 psi	46.70 psi	0.44	OK
+0.90D	13.61 psi	13.61 psi	13.61 psi	46.70 psi	0.29	OK

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	47.55 psi	164.32 psi	0.29	OK
+1.20D+1.60L	56.83 psi	164.32 psi	0.35	OK
+1.20D+L	50.81 psi	164.32 psi	0.31	OK
+1.20D	40.76 psi	164.32 psi	0.25	OK
+1.20D+0.50L	45.78 psi	164.32 psi	0.28	OK
+0.90D	30.57 psi	164.32 psi	0.19	OK

All units k

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-5/2B-6**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

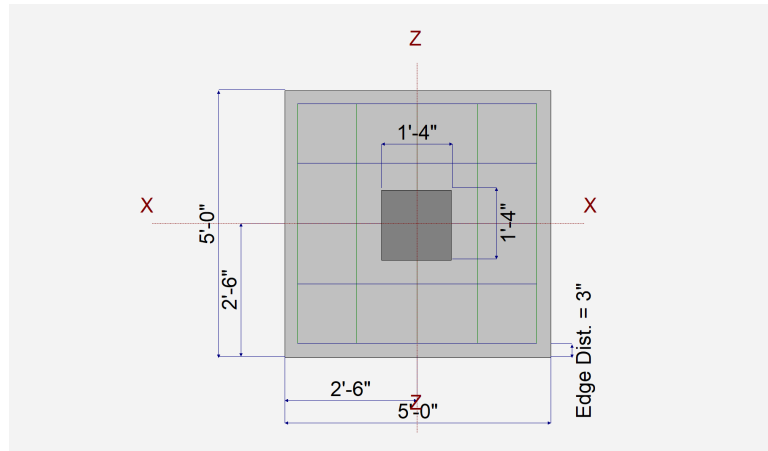
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	16.0 in
pz : parallel to Z-Z Axis	=	16.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing****Bars parallel to X-X Axis (resisting Z Flexure)**

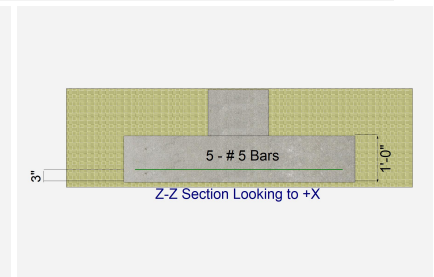
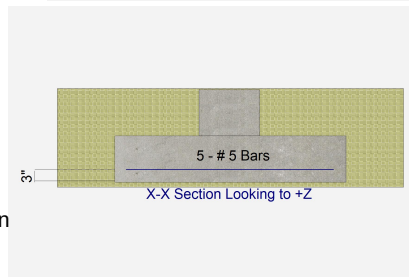
Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	# 5

Rebar Centerline to Edge of Concrete... at Bottom of footing

= 3.0 in



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-5/2B-6**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	50.890	0.000	14.210	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9503	Soil Bearing	2.851 ksf	3.0 ksf	+D+L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	18.996 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	18.996 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.4630	Z Flexure (+X) Bot Tens	5.617 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.4630	Z Flexure (-X) Bot Tens	5.617 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.4630	X Flexure (+Z) Bot Tens	5.617 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.4630	X Flexure (-Z) Bot Tens	5.617 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.7290	1-way Shear (+X)	34.047 psi	46.704 psi	+1.20D+1.60L
PASS	0.7290	1-way Shear (-X)	34.047 psi	46.704 psi	+1.20D+1.60L
PASS	0.7290	1-way Shear (+Z)	34.047 psi	46.704 psi	+1.20D+1.60L
PASS	0.7290	1-way Shear (-Z)	34.047 psi	46.704 psi	+1.20D+1.60L
PASS	0.4654	2-way Punching	76.475 psi	164.317 psi	+1.20D+1.60L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	2.283	2.283	n/a	n/a	0.761
X-X, +D+L	3.0	n/a	0.0	2.851	2.851	n/a	n/a	0.950
X-X, +D+0.750L	3.0	n/a	0.0	2.709	2.709	n/a	n/a	0.903
X-X, +0.60D	3.0	n/a	0.0	1.370	1.370	n/a	n/a	0.457
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	2.283	2.283	0.761
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	2.851	2.851	0.950
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	2.709	2.709	0.903
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	1.370	1.370	0.457

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F3 @ SC2/2B-5/2B-6**Footing Flexure**

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in ²	Gvrn. As in ²	Actual As in ²	Phi*Mn k-ft	Status
X-X, +1.40D	4.771	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	4.771	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	5.617	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	5.617	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	5.044	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	5.044	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	4.089	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	4.089	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	4.567	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	4.567	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	3.067	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	3.067	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	4.771	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	4.771	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	5.617	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	5.617	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	5.044	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	5.044	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	4.089	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	4.089	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	4.567	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	4.567	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	3.067	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	3.067	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	28.92 psi	28.92 psi	28.92 psi	46.70 psi	0.62	OK
+1.20D+1.60L	34.05 psi	34.05 psi	34.05 psi	46.70 psi	0.73	OK
+1.20D+L	30.57 psi	30.57 psi	30.57 psi	46.70 psi	0.65	OK
+1.20D	24.78 psi	24.78 psi	24.78 psi	46.70 psi	0.53	OK
+1.20D+0.50L	27.68 psi	27.68 psi	27.68 psi	46.70 psi	0.59	OK
+0.90D	18.59 psi	18.59 psi	18.59 psi	46.70 psi	0.40	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	28.92 psi	28.92 psi	28.92 psi	46.70 psi	0.62	OK
+1.20D+1.60L	34.05 psi	34.05 psi	34.05 psi	46.70 psi	0.73	OK
+1.20D+L	30.57 psi	30.57 psi	30.57 psi	46.70 psi	0.65	OK
+1.20D	24.78 psi	24.78 psi	24.78 psi	46.70 psi	0.53	OK
+1.20D+0.50L	27.68 psi	27.68 psi	27.68 psi	46.70 psi	0.59	OK
+0.90D	18.59 psi	18.59 psi	18.59 psi	46.70 psi	0.40	OK

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	64.95 psi	164.32 psi	0.40	OK
+1.20D+1.60L	76.48 psi	164.32 psi	0.47	OK
+1.20D+L	68.67 psi	164.32 psi	0.42	OK
+1.20D	55.67 psi	164.32 psi	0.34	OK
+1.20D+0.50L	62.17 psi	164.32 psi	0.38	OK
+0.90D	41.75 psi	164.32 psi	0.25	OK

All units k

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C6/2B-2/2B-6**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

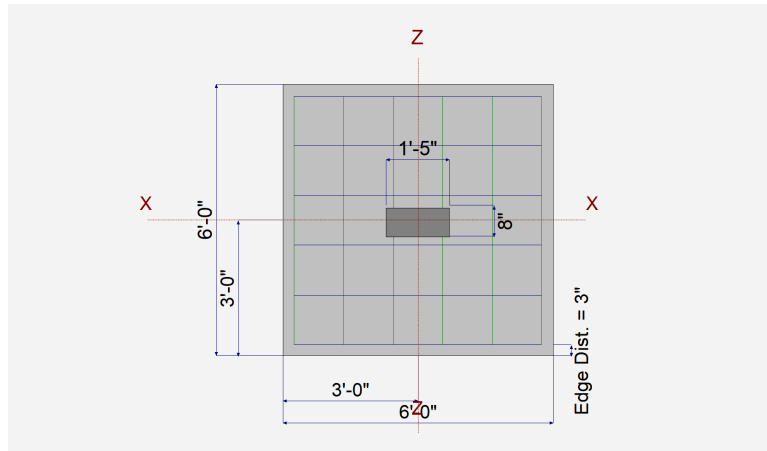
Width parallel to X-X Axis	=	6.0 ft
Length parallel to Z-Z Axis	=	6.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

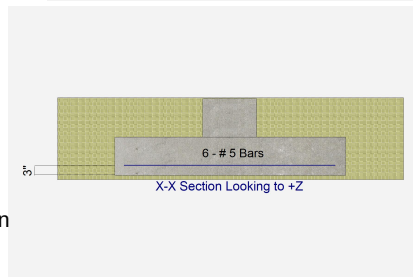
px : parallel to X-X Axis	=	17.0 in
pz : parallel to Z-Z Axis	=	8.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing**

Bars parallel to X-X Axis (resisting Z Flexure)		
Number of Bars	=	6.0
Reinforcing Bar Size	=	# 5
Bars parallel to Z-Z Axis (resisting X Flexure)		
Number of Bars	=	6.0
Reinforcing Bar Size	=	# 5
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C6/2B-2/2B-6**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	54.260	3.740	10.050	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.6823	Soil Bearing	2.047 ksf	3.0 ksf	+D+0.750Lr+0.750L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	21.251 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	21.251 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.4987	Z Flexure (+X) Bot Tens	6.049 k-ft/ft	12.131 k-ft/ft	+1.20D+0.50Lr+1.60L
PASS	0.4987	Z Flexure (-X) Bot Tens	6.049 k-ft/ft	12.131 k-ft/ft	+1.20D+0.50Lr+1.60L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.6752	X Flexure (+Z) Bot Tens	8.191 k-ft/ft	12.131 k-ft/ft	+1.20D+0.50Lr+1.60L
PASS	0.6752	X Flexure (-Z) Bot Tens	8.191 k-ft/ft	12.131 k-ft/ft	+1.20D+0.50Lr+1.60L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.7125	1-way Shear (+X)	33.277 psi	46.704 psi	+1.20D+0.50Lr+1.60L
PASS	0.7125	1-way Shear (-X)	33.277 psi	46.704 psi	+1.20D+0.50Lr+1.60L
PASS	0.8769	1-way Shear (+Z)	40.957 psi	46.704 psi	+1.20D+0.50Lr+1.60L
PASS	0.8769	1-way Shear (-Z)	40.957 psi	46.704 psi	+1.20D+0.50Lr+1.60L
PASS	0.6138	2-way Punching	97.896 psi	159.484 psi	+1.20D+0.50Lr+1.60L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.759	1.759	n/a	n/a	0.586
X-X, +D+L	3.0	n/a	0.0	2.039	2.039	n/a	n/a	0.680
X-X, +D+Lr	3.0	n/a	0.0	1.863	1.863	n/a	n/a	0.621
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	2.047	2.047	n/a	n/a	0.682
X-X, +D+0.750L	3.0	n/a	0.0	1.969	1.969	n/a	n/a	0.656
X-X, +0.60D	3.0	n/a	0.0	1.056	1.056	n/a	n/a	0.352
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.759	1.759	0.586
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	2.039	2.039	0.680
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.863	1.863	0.621
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	2.047	2.047	0.682
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	1.969	1.969	0.656
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	1.056	1.056	0.352

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C6/2B-2/2B-6**Sliding Stability**

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
---	---------------	-----------------	-----------------	--------

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	7.488	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	7.488	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	8.191	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	8.191	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	8.006	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	8.006	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	8.001	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	8.001	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	7.009	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	7.009	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	7.410	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	7.410	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	6.418	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	6.418	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	7.595	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	7.595	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	6.914	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	6.914	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	4.813	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	4.813	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	5.530	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	5.530	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	6.049	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	6.049	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	5.913	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	5.913	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	5.910	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	5.910	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	5.177	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	5.177	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	5.473	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	5.473	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	4.740	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	4.740	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	5.610	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	5.610	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	5.107	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	5.107	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	3.555	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	3.555	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	30.42 psi	30.42 psi	30.42 psi	46.70 psi	0.65	OK
+1.20D+0.50Lr+1.60L	33.28 psi	33.28 psi	33.28 psi	46.70 psi	0.71	OK
+1.20D+1.60L	32.53 psi	32.53 psi	32.53 psi	46.70 psi	0.70	OK
+1.20D+1.60Lr+L	32.51 psi	32.51 psi	32.51 psi	46.70 psi	0.70	OK
+1.20D+1.60Lr	28.48 psi	28.48 psi	28.48 psi	46.70 psi	0.61	OK
+1.20D+L	30.11 psi	30.11 psi	30.11 psi	46.70 psi	0.64	OK
+1.20D	26.08 psi	26.08 psi	26.08 psi	46.70 psi	0.56	OK
+1.20D+0.50Lr+L	30.86 psi	30.86 psi	30.86 psi	46.70 psi	0.66	OK
+1.20D+0.50L	28.09 psi	28.09 psi	28.09 psi	46.70 psi	0.60	OK
+0.90D	19.56 psi	19.56 psi	19.56 psi	46.70 psi	0.42	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	37.44 psi	37.44 psi	37.44 psi	46.70 psi	0.80	OK
+1.20D+0.50Lr+1.60L	40.96 psi	40.96 psi	40.96 psi	46.70 psi	0.88	OK
+1.20D+1.60L	40.03 psi	40.03 psi	40.03 psi	46.70 psi	0.86	OK
+1.20D+1.60Lr+L	40.01 psi	40.01 psi	40.01 psi	46.70 psi	0.86	OK
+1.20D+1.60Lr	35.05 psi	35.05 psi	35.05 psi	46.70 psi	0.75	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C6/2B-2/2B-6**One Way Shear Z**

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D+L	37.06 psi	37.06 psi	37.06 psi	46.70 psi	0.79	OK
+1.20D	32.09 psi	32.09 psi	32.09 psi	46.70 psi	0.69	OK
+1.20D+0.50Lr+L	37.98 psi	37.98 psi	37.98 psi	46.70 psi	0.81	OK
+1.20D+0.50L	34.57 psi	34.57 psi	34.57 psi	46.70 psi	0.74	OK
+0.90D	24.07 psi	24.07 psi	24.07 psi	46.70 psi	0.52	OK

All units k

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	89.49 psi	159.48 psi	0.56	OK
+1.20D+0.50Lr+1.60L	97.90 psi	159.48 psi	0.61	OK
+1.20D+1.60L	95.69 psi	159.48 psi	0.60	OK
+1.20D+1.60Lr+L	95.63 psi	159.48 psi	0.60	OK
+1.20D+1.60Lr	83.77 psi	159.48 psi	0.53	OK
+1.20D+L	88.57 psi	159.48 psi	0.56	OK
+1.20D	76.71 psi	159.48 psi	0.48	OK
+1.20D+0.50Lr+L	90.78 psi	159.48 psi	0.57	OK
+1.20D+0.50L	82.64 psi	159.48 psi	0.52	OK
+0.90D	57.53 psi	159.48 psi	0.36	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C2/2B-2/2B-3**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

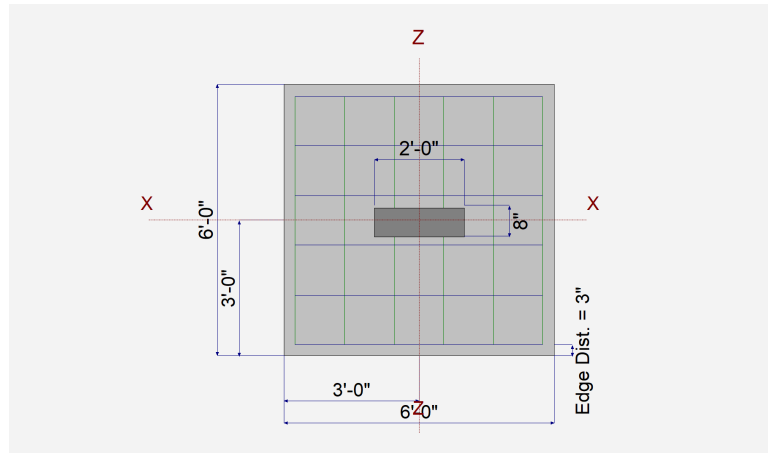
Width parallel to X-X Axis	=	6.0 ft
Length parallel to Z-Z Axis	=	6.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

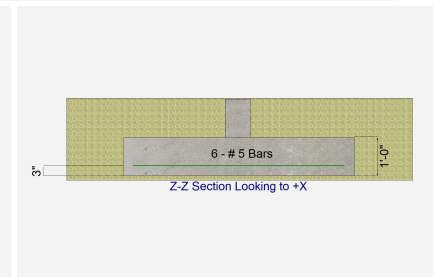
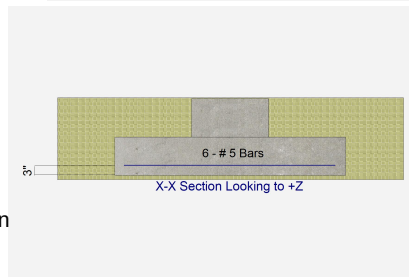
px : parallel to X-X Axis	=	24.0 in
pz : parallel to Z-Z Axis	=	8.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing**

Bars parallel to X-X Axis (resisting Z Flexure)			
Number of Bars	=	6.0	
Reinforcing Bar Size	=	#	5
Bars parallel to Z-Z Axis (resisting X Flexure)			
Number of Bars	=	6.0	
Reinforcing Bar Size	=	#	5
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in	



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C2/2B-2/2B-3**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	40.140	6.880	3.700	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5287	Soil Bearing	1.586 ksf	3.0 ksf	+D+0.750Lr+0.750L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	17.002 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	17.002 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.2871	Z Flexure (+X) Bot Tens	3.483 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.2871	Z Flexure (-X) Bot Tens	3.483 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.5104	X Flexure (+Z) Bot Tens	6.192 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.5104	X Flexure (-Z) Bot Tens	6.192 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.4351	1-way Shear (+X)	20.319 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.4351	1-way Shear (-X)	20.319 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.6630	1-way Shear (+Z)	30.963 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.6630	1-way Shear (-Z)	30.963 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.4526	2-way Punching	61.975 psi	136.931 psi	+1.20D+1.60Lr+L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.366	1.366	n/a	n/a	0.455
X-X, +D+L	3.0	n/a	0.0	1.469	1.469	n/a	n/a	0.490
X-X, +D+Lr	3.0	n/a	0.0	1.557	1.557	n/a	n/a	0.519
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	1.586	1.586	n/a	n/a	0.529
X-X, +D+0.750L	3.0	n/a	0.0	1.443	1.443	n/a	n/a	0.481
X-X, +0.60D	3.0	n/a	0.0	0.8196	0.8196	n/a	n/a	0.273
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.366	1.366	0.455
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	1.469	1.469	0.490
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.557	1.557	0.519
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	1.586	1.586	0.529
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	1.443	1.443	0.481
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.8196	0.8196	0.273

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C2/2B-2/2B-3**Sliding Stability**

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
---	---------------	-----------------	-----------------	--------

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	5.529	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	5.529	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	5.664	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	5.664	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	5.324	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	5.324	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	6.192	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	6.192	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	5.827	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	5.827	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	5.105	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	5.105	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	4.739	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	4.739	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	5.445	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	5.445	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	4.922	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	4.922	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	3.555	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	3.555	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.110	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.110	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	3.186	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	3.186	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	2.995	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	2.995	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	3.483	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	3.483	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	3.277	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	3.277	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	2.871	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	2.871	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.666	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	2.666	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	3.063	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	3.063	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	2.769	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	2.769	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.999	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.999	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	18.15 psi	18.15 psi	18.15 psi	46.70 psi	0.39	OK
+1.20D+0.50Lr+1.60L	18.59 psi	18.59 psi	18.59 psi	46.70 psi	0.40	OK
+1.20D+1.60L	17.47 psi	17.47 psi	17.47 psi	46.70 psi	0.37	OK
+1.20D+1.60Lr+L	20.32 psi	20.32 psi	20.32 psi	46.70 psi	0.44	OK
+1.20D+1.60Lr	19.12 psi	19.12 psi	19.12 psi	46.70 psi	0.41	OK
+1.20D+L	16.75 psi	16.75 psi	16.75 psi	46.70 psi	0.36	OK
+1.20D	15.55 psi	15.55 psi	15.55 psi	46.70 psi	0.33	OK
+1.20D+0.50Lr+L	17.87 psi	17.87 psi	17.87 psi	46.70 psi	0.38	OK
+1.20D+0.50L	16.15 psi	16.15 psi	16.15 psi	46.70 psi	0.35	OK
+0.90D	11.67 psi	11.67 psi	11.67 psi	46.70 psi	0.25	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	27.65 psi	27.65 psi	27.65 psi	46.70 psi	0.59	OK
+1.20D+0.50Lr+1.60L	28.32 psi	28.32 psi	28.32 psi	46.70 psi	0.61	OK
+1.20D+1.60L	26.62 psi	26.62 psi	26.62 psi	46.70 psi	0.57	OK
+1.20D+1.60Lr+L	30.96 psi	30.96 psi	30.96 psi	46.70 psi	0.66	OK
+1.20D+1.60Lr	29.14 psi	29.14 psi	29.14 psi	46.70 psi	0.62	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ C2/2B-2/2B-3**One Way Shear Z**

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D+L	25.53 psi	25.53 psi	25.53 psi	46.70 psi	0.55	OK
+1.20D	23.70 psi	23.70 psi	23.70 psi	46.70 psi	0.51	OK
+1.20D+0.50Lr+L	27.23 psi	27.23 psi	27.23 psi	46.70 psi	0.58	OK
+1.20D+0.50L	24.61 psi	24.61 psi	24.61 psi	46.70 psi	0.53	OK
+0.90D	17.78 psi	17.78 psi	17.78 psi	46.70 psi	0.38	OK

All units k

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	55.34 psi	136.93 psi	0.40	OK
+1.20D+0.50Lr+1.60L	56.69 psi	136.93 psi	0.41	OK
+1.20D+1.60L	53.29 psi	136.93 psi	0.39	OK
+1.20D+1.60Lr+L	61.98 psi	136.93 psi	0.45	OK
+1.20D+1.60Lr	58.32 psi	136.93 psi	0.43	OK
+1.20D+L	51.10 psi	136.93 psi	0.37	OK
+1.20D	47.44 psi	136.93 psi	0.35	OK
+1.20D+0.50Lr+L	54.50 psi	136.93 psi	0.40	OK
+1.20D+0.50L	49.27 psi	136.93 psi	0.36	OK
+0.90D	35.58 psi	136.93 psi	0.26	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ MC/1B-44/1B-5**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

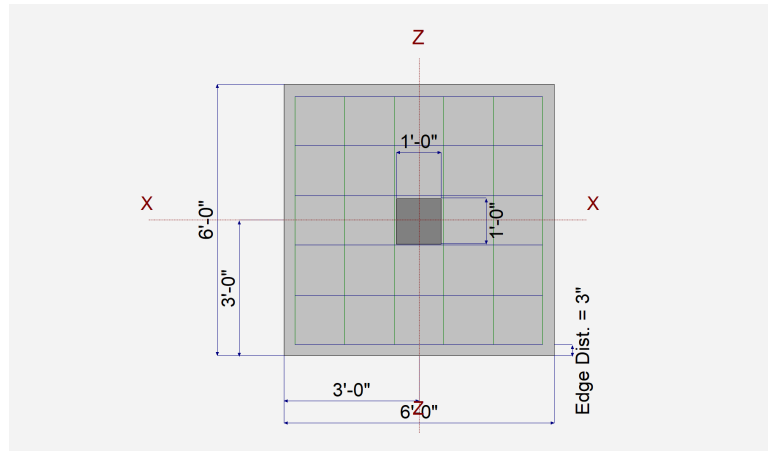
Width parallel to X-X Axis	=	6.0 ft
Length parallel to Z-Z Axis	=	6.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

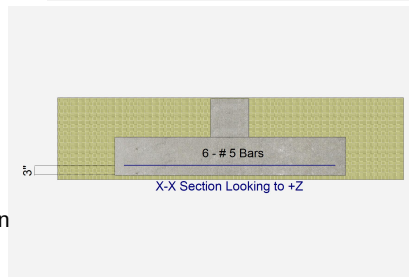
px : parallel to X-X Axis	=	12.0 in
pz : parallel to Z-Z Axis	=	12.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing**

Bars parallel to X-X Axis (resisting Z Flexure)			
Number of Bars	=	6.0	
Reinforcing Bar Size	=	#	5
Bars parallel to Z-Z Axis (resisting X Flexure)			
Number of Bars	=	6.0	
Reinforcing Bar Size	=	#	5
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in	



General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ MC/1B-44/1B-5**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	13.750	3.980	0.000	0.000	-5.200	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.2481	Soil Bearing	0.7444 ksf	3.0 ksf	+D+Lr about Z-Z axis
PASS	4.388	Overturning - X-X	9.360 k-ft	41.080 k-ft	+0.60D+0.60W
PASS	4.388	Overturning - Z-Z	9.360 k-ft	41.080 k-ft	+0.60D+0.60W
PASS	999.0	Sliding - X-X	0.0 k	9.096 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	9.096 k	D Only
PASS	4.388	Uplift	-3.120 k	13.692 k	+0.60D+0.60W
PASS	0.1627	Z Flexure (+X) Bot Tens	1.973 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr
PASS	0.1627	Z Flexure (-X) Bot Tens	1.973 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.1627	X Flexure (+Z) Bot Tens	1.973 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr
PASS	0.1627	X Flexure (-Z) Bot Tens	1.973 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS		Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS		Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS		X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS		X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.2179	1-way Shear (+X)	10.175 psi	46.704 psi	+1.20D+1.60Lr
PASS	0.2179	1-way Shear (-X)	10.175 psi	46.704 psi	+1.20D+1.60Lr
PASS	0.2179	1-way Shear (+Z)	10.175 psi	46.704 psi	+1.20D+1.60Lr
PASS	0.2179	1-way Shear (-Z)	10.175 psi	46.704 psi	+1.20D+1.60Lr
PASS	0.1666	2-way Punching	27.367 psi	164.317 psi	+1.20D+1.60Lr

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	0.6339	0.6339	n/a	n/a	0.211
X-X, +D+Lr	3.0	n/a	0.0	0.7444	0.7444	n/a	n/a	0.248
X-X, +D+0.750Lr	3.0	n/a	0.0	0.7168	0.7168	n/a	n/a	0.239
X-X, +D+0.60W	3.0	n/a	0.0	0.5472	0.5472	n/a	n/a	0.182
X-X, +D+0.750Lr+0.450W	3.0	n/a	0.0	0.6518	0.6518	n/a	n/a	0.217
X-X, +D+0.450W	3.0	n/a	0.0	0.5689	0.5689	n/a	n/a	0.190
X-X, +0.60D+0.60W	3.0	n/a	0.0	0.2937	0.2937	n/a	n/a	0.098
X-X, +0.60D	3.0	n/a	0.0	0.3803	0.3803	n/a	n/a	0.127
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	0.6339	0.6339	0.211
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	0.7444	0.7444	0.248
Z-Z, +D+0.750Lr	3.0	0.0	n/a	n/a	n/a	0.7168	0.7168	0.239
Z-Z, +D+0.60W	3.0	0.0	n/a	n/a	n/a	0.5472	0.5472	0.182
Z-Z, +D+0.750Lr+0.450W	3.0	0.0	n/a	n/a	n/a	0.6518	0.6518	0.217
Z-Z, +D+0.450W	3.0	0.0	n/a	n/a	n/a	0.5689	0.5689	0.190
Z-Z, +0.60D+0.60W	3.0	0.0	n/a	n/a	n/a	0.2937	0.2937	0.098
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.3803	0.3803	0.127

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
X-X, D Only	None	68.46	Infinity	OK	None	68.46	Infinity	OK
X-X, +D+Lr	None	80.40	Infinity	OK	None	80.40	Infinity	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ MC/1B-44/1B-5**Overturning Stability**

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
X-X, +D+0.750Lr	None	77.42	Infinity	OK	None	77.42	Infinity	OK
X-X, +D+0.60W	9.36	68.46	7.314	OK	9.36	68.46	7.314	OK
X-X, +D+0.750Lr+0.450W	7.02	77.42	11.028	OK	7.02	77.42	11.028	OK
X-X, +D+0.450W	7.02	68.46	9.752	OK	7.02	68.46	9.752	OK
X-X, +0.60D+0.60W	9.36	41.08	4.388	OK	9.36	41.08	4.388	OK
X-X, +0.60D	None	41.08	Infinity	OK	None	41.08	Infinity	OK
Z-Z, D Only	None	68.46	Infinity	OK	None	68.46	Infinity	OK
Z-Z, +D+Lr	None	80.40	Infinity	OK	None	80.40	Infinity	OK
Z-Z, +D+0.750Lr	None	77.42	Infinity	OK	None	77.42	Infinity	OK
Z-Z, +D+0.60W	9.36	68.46	7.314	OK	9.36	68.46	7.314	OK
Z-Z, +D+0.750Lr+0.450W	7.02	77.42	11.028	OK	7.02	77.42	11.028	OK
Z-Z, +D+0.450W	7.02	68.46	9.752	OK	7.02	68.46	9.752	OK
Z-Z, +0.60D+0.60W	9.36	41.08	4.388	OK	9.36	41.08	4.388	OK
Z-Z, +0.60D	None	41.08	Infinity	OK	None	41.08	Infinity	OK

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.658	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	1.658	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr	1.593	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr	1.593	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	1.421	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	1.421	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	1.973	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	1.973	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+0.50W	1.748	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+0.50W	1.748	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50W	1.195	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50W	1.195	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+W	1.142	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+W	1.142	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+W	0.9694	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+W	0.9694	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D+W	0.6142	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D+W	0.6142	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.066	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.066	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.658	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.658	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr	1.593	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr	1.593	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.421	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.421	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	1.973	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	1.973	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+0.50W	1.748	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+0.50W	1.748	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50W	1.195	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50W	1.195	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+W	1.142	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+W	1.142	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+W	0.9694	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+W	0.9694	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D+W	0.6142	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D+W	0.6142	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.066	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.066	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F4 @ MC/1B-44/1B-5**One Way Shear X**

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	8.55 psi	8.55 psi	8.55 psi	46.70 psi	0.18	OK
+1.20D+0.50Lr	8.22 psi	8.22 psi	8.22 psi	46.70 psi	0.18	OK
+1.20D	7.33 psi	7.33 psi	7.33 psi	46.70 psi	0.16	OK
+1.20D+1.60Lr	10.18 psi	10.18 psi	10.18 psi	46.70 psi	0.22	OK
+1.20D+1.60Lr+0.50W	9.01 psi	9.01 psi	9.01 psi	46.70 psi	0.19	OK
+1.20D+0.50W	6.16 psi	6.16 psi	6.16 psi	46.70 psi	0.13	OK
+1.20D+0.50Lr+W	5.89 psi	5.89 psi	5.89 psi	46.70 psi	0.13	OK
+1.20D+W	5.00 psi	5.00 psi	5.00 psi	46.70 psi	0.11	OK
+0.90D+W	3.17 psi	3.17 psi	3.17 psi	46.70 psi	0.07	OK
+0.90D	5.49 psi	5.49 psi	5.49 psi	46.70 psi	0.12	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	8.55 psi	8.55 psi	8.55 psi	46.70 psi	0.18	OK
+1.20D+0.50Lr	8.22 psi	8.22 psi	8.22 psi	46.70 psi	0.18	OK
+1.20D	7.33 psi	7.33 psi	7.33 psi	46.70 psi	0.16	OK
+1.20D+1.60Lr	10.18 psi	10.18 psi	10.18 psi	46.70 psi	0.22	OK
+1.20D+1.60Lr+0.50W	9.01 psi	9.01 psi	9.01 psi	46.70 psi	0.19	OK
+1.20D+0.50W	6.16 psi	6.16 psi	6.16 psi	46.70 psi	0.13	OK
+1.20D+0.50Lr+W	5.89 psi	5.89 psi	5.89 psi	46.70 psi	0.13	OK
+1.20D+W	5.00 psi	5.00 psi	5.00 psi	46.70 psi	0.11	OK
+0.90D+W	3.17 psi	3.17 psi	3.17 psi	46.70 psi	0.07	OK
+0.90D	5.49 psi	5.49 psi	5.49 psi	46.70 psi	0.12	OK

All units k

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	22.99 psi	164.32 psi	0.14	OK
+1.20D+0.50Lr	22.10 psi	164.32 psi	0.13	OK
+1.20D	19.70 psi	164.32 psi	0.12	OK
+1.20D+1.60Lr	27.37 psi	164.32 psi	0.17	OK
+1.20D+1.60Lr+0.50W	24.24 psi	164.32 psi	0.15	OK
+1.20D+0.50W	16.57 psi	164.32 psi	0.10	OK
+1.20D+0.50Lr+W	15.84 psi	164.32 psi	0.10	OK
+1.20D+W	13.44 psi	164.32 psi	0.08	OK
+0.90D+W	8.52 psi	164.32 psi	0.05	OK
+0.90D	14.78 psi	164.32 psi	0.09	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F5 @ C7/2B-12/2B-8**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'_c : Concrete 28 day strength	=	3.0 ksi
f_y : Rebar Yield	=	60.0 ksi
E_c : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
ϕ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	7.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

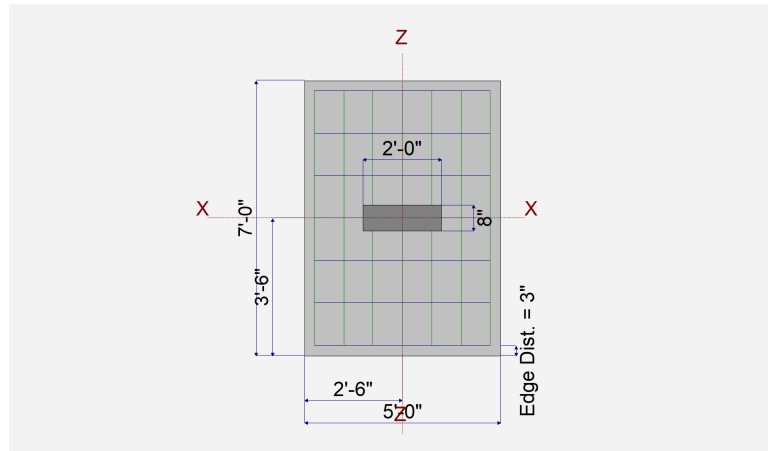
px : parallel to X-X Axis	=	24.0 in
pz : parallel to Z-Z Axis	=	8.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation Bars along X-X Axis

Bars required within zone 83.3 %

Bars required on each side of zone 16.7 %

**Bottom Reinforcing**

Bars parallel to X-X Axis (resisting Z Flexure)

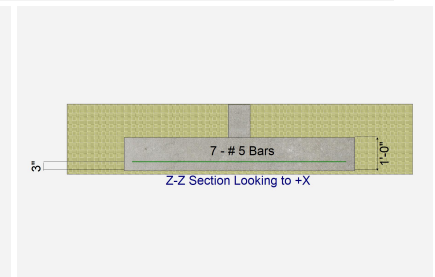
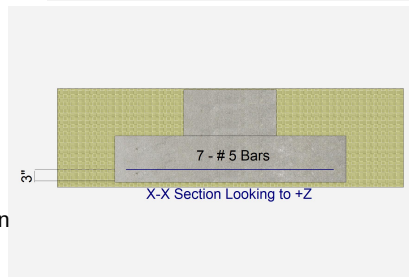
Number of Bars	=	7.0
Reinforcing Bar Size	=	# 5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	# 5

Rebar Centerline to Edge of Concrete...
at Bottom of footing

= 3.0 in

**Top Reinforcing**

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	7
Reinforcing Bar Size	=	5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	7
Reinforcing Bar Size	=	5

Rebar Centerline to Edge of Concrete...

at Top of footing = 3.0 in

General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F5 @ C7/2B-12/2B-8**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	36.500	6.770	4.140	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5090	Soil Bearing	1.527 ksf	3.0 ksf	+D+0.750Lr+0.750L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	16.209 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	15.459 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1553	Z Flexure (+X) Bot Tens	1.883 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.1553	Z Flexure (-X) Bot Tens	1.883 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.5012	X Flexure (+Z) Bot Tens	8.394 k-ft/ft	16.746 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.5012	X Flexure (-Z) Bot Tens	8.394 k-ft/ft	16.746 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.597	Min Steel Z Flexure Bottom	0.259 in2/ft	0.434 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.2489	1-way Shear (+X)	11.626 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.2489	1-way Shear (-X)	11.626 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.7269	1-way Shear (+Z)	37.979 psi	52.248 psi	+1.20D+1.60Lr+L
PASS	0.7269	1-way Shear (-Z)	37.979 psi	52.248 psi	+1.20D+1.60Lr+L
PASS	0.4241	2-way Punching	58.075 psi	136.931 psi	+1.20D+1.60Lr+L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.294	1.294	n/a	n/a	0.431
X-X, +D+L	3.0	n/a	0.0	1.412	1.412	n/a	n/a	0.471
X-X, +D+Lr	3.0	n/a	0.0	1.487	1.487	n/a	n/a	0.496
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	1.527	1.527	n/a	n/a	0.509
X-X, +D+0.750L	3.0	n/a	0.0	1.382	1.382	n/a	n/a	0.461
X-X, +0.60D	3.0	n/a	0.0	0.7762	0.7762	n/a	n/a	0.259
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.294	1.294	0.431
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	1.412	1.412	0.471
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.487	1.487	0.496
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	1.527	1.527	0.509
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	1.382	1.382	0.461
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.7762	0.7762	0.259

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F5 @ C7/2B-12/2B-8**Sliding Stability**

All units k

**Force Application Axis
Load Combination...****Sliding Force****Resisting Force****Stability Ratio****Status**

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	7.291	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.40D	7.291	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+0.50Lr+1.60L	7.683	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+0.50Lr+1.60L	7.683	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+1.60L	7.198	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+1.60L	7.198	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+1.60Lr+L	8.394	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+1.60Lr+L	8.394	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+1.60Lr	7.801	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+1.60Lr	7.801	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+L	6.842	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+L	6.842	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D	6.249	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D	6.249	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+0.50Lr+L	7.327	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+0.50Lr+L	7.327	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+0.50L	6.546	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +1.20D+0.50L	6.546	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +0.90D	4.687	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
X-X, +0.90D	4.687	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4340	16.746	OK
Z-Z, +1.40D	1.636	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.636	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.724	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.724	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	1.615	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	1.615	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	1.883	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	1.883	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	1.750	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	1.750	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	1.535	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	1.535	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.402	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.402	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	1.644	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	1.644	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	1.469	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	1.469	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.052	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.052	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
---------------------------------	------------	------	--------------------	------------------	------------------	-------------------	----------------	--------

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	10.10 psi	10.10 psi	10.10 psi	46.70 psi	0.22	OK
+1.20D+0.50Lr+1.60L	10.64 psi	10.64 psi	10.64 psi	46.70 psi	0.23	OK
+1.20D+1.60L	9.97 psi	9.97 psi	9.97 psi	46.70 psi	0.21	OK
+1.20D+1.60Lr+L	11.63 psi	11.63 psi	11.63 psi	46.70 psi	0.25	OK
+1.20D+1.60Lr	10.81 psi	10.81 psi	10.81 psi	46.70 psi	0.23	OK
+1.20D+L	9.48 psi	9.48 psi	9.48 psi	46.70 psi	0.20	OK
+1.20D	8.66 psi	8.66 psi	8.66 psi	46.70 psi	0.19	OK
+1.20D+0.50Lr+L	10.15 psi	10.15 psi	10.15 psi	46.70 psi	0.22	OK
+1.20D+0.50L	9.07 psi	9.07 psi	9.07 psi	46.70 psi	0.19	OK
+0.90D	6.49 psi	6.49 psi	6.49 psi	46.70 psi	0.14	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	32.99 psi	32.99 psi	32.99 psi	52.25 psi	0.63	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F5 @ C7/2B-12/2B-8**One Way Shear Z**

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D+0.50Lr+1.60L	34.76 psi	34.76 psi	34.76 psi	52.25 psi	0.67	OK
+1.20D+1.60L	32.57 psi	32.57 psi	32.57 psi	52.25 psi	0.62	OK
+1.20D+1.60Lr+L	37.98 psi	37.98 psi	37.98 psi	52.25 psi	0.73	OK
+1.20D+1.60Lr	35.30 psi	35.30 psi	35.30 psi	52.25 psi	0.68	OK
+1.20D+L	30.96 psi	30.96 psi	30.96 psi	52.25 psi	0.59	OK
+1.20D	28.28 psi	28.28 psi	28.28 psi	52.25 psi	0.54	OK
+1.20D+0.50Lr+L	33.15 psi	33.15 psi	33.15 psi	52.25 psi	0.63	OK
+1.20D+0.50L	29.62 psi	29.62 psi	29.62 psi	52.25 psi	0.57	OK
+0.90D	21.21 psi	21.21 psi	21.21 psi	52.25 psi	0.41	OK

All units k

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	50.44 psi	136.93 psi	0.37	OK
+1.20D+0.50Lr+1.60L	53.16 psi	136.93 psi	0.39	OK
+1.20D+1.60L	49.80 psi	136.93 psi	0.36	OK
+1.20D+1.60Lr+L	58.08 psi	136.93 psi	0.42	OK
+1.20D+1.60Lr	53.97 psi	136.93 psi	0.39	OK
+1.20D+L	47.34 psi	136.93 psi	0.35	OK
+1.20D	43.24 psi	136.93 psi	0.32	OK
+1.20D+0.50Lr+L	50.69 psi	136.93 psi	0.37	OK
+1.20D+0.50L	45.29 psi	136.93 psi	0.33	OK
+0.90D	32.43 psi	136.93 psi	0.24	OK

Combined Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'_c : Concrete 28 day strength	3.0 ksi
f_y : Rebar Yield	60.0 ksi
E_c : Concrete Elastic Modulus	3,122.0 ksi
Concrete Density	145.0 pcf
ϕ : Phi Values	
Flexure :	0.90
Shear :	0.750

Analysis/Design Settings

Calculate footing weight as dead load ?	Yes
Calculate Pedestal weight as dead load ?	No
Min Steel Ratio per ACI 7.6.1.1 (ratio=Steel Area/Concrete Area)	0.0018
Min. Overturning Safety Factor	1.0: 1
Min. Sliding Safety Factor	1.0: 1

Soil Information

Allowable Soil Bearing	3.0 ksf
Increase Bearing By Footing Weight	No
Soil Passive Sliding Resistance	250.0 pcf
(Uses entry for "Footing base depth below soil surface" for force)	
Coefficient of Soil/Concrete Friction	0.30

Soil Bearing Increase

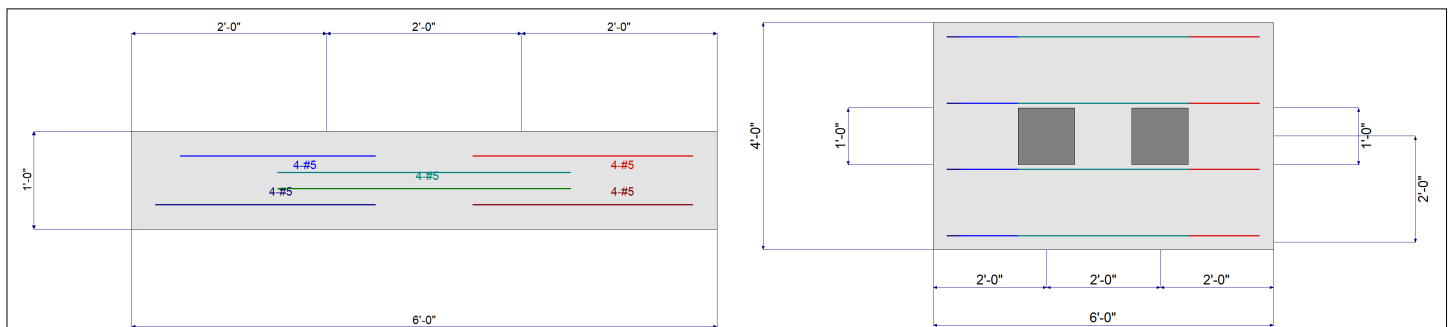
Footing base depth below soil surface	2.0 ft
Increases based on footing Depth . . .	
Allowable pressure increase per foot when base of footing is below	ksf ft
Increases based on footing Width . . .	
Allowable pressure increase per foot when maximum length or width is greater tha	ksf ft
Maximum Allowed Bearing Pressure (A value of zero implies no limit)	10.0 ksf
Adjusted Allowable Soil Bearing	3.0 ksf
(Allowable Soil Bearing adjusted for footing weight and depth & width increases as specified by user.)	

Dimensions & Reinforcing

Distance Left of Column #1	=	2.0 ft	Pedestal dimensions...				As			
Between Columns	=	2.0 ft								
Distance Right of Column #2	=	2.0 ft		Col #1	Col #2	Bars left of Col #1	Count	Size #	Provided	
Total Footing Length	=	6.0 ft	Sq. Dim.	=	12.0	12.0 in	Bottom Bars	4.0	5	1.240
							Top Bars	4.0	5	1.240
Footing Width	=	4.0 ft	Height	=			Bars Btwn Cols			
							Bottom Bars	4.0	5	1.240
Footing Thickness	=	12.0 in					Top Bars	4.0	5	1.240
Bars Right of Col #2										
Rebar Center to Concrete Edge @ Top	=	3.0 in					Bottom Bars	4.0	5	1.240
Rebar Center to Concrete Edge @ Bottom	=	3.0 in					Top Bars	4.0	5	1.240

Applied Loads

Applied @ Left Column	D	Lr	L	S	W	E	H
Axial Load Downward	=	6.50	1.250				k
Moment (+CW)	=						k-ft
Shear (+X)	=						k
Applied @ Right Column							
Axial Load Downward	=	2.250	1.10				k
Moment (+CW)	=						k-ft
Shear (+X)	=						k
Overburden	=						



Combined Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**DESIGN SUMMARY****Design OK**

Factor of Safety	Item	Applied	Capacity	Governing Load Combination
PASS	No OTM	Overturing	0.0 k-ft	No OTM
PASS	No Sliding	Sliding	0.0 k	No Sliding
PASS	No Uplift	Uplift	0.0 k	No Uplift

Utilization Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.2965	Soil Bearing	0.8894 ksf	3.0 ksf
PASS	0.1173	1-way Shear - Col #1	5.478 psi	46.704 psi
PASS	0.08136	1-way Shear - Col #2	3.80 psi	46.704 psi
PASS	0.0570	2-way Punching - Col #1	9.366 psi	164.317 psi
PASS	0.06065	2-way Punching - Col #2	9.965 psi	164.317 psi
PASS	No Tension	Flexure - Left of Col #1 - Top	0.0 k-ft	0.0 k-ft
PASS	0.06822	Flexure - Left of Col #1 - Bottom	3.310 k-ft	48.524 k-ft
PASS	No Tension	Flexure - Between Cols - Top	0.0 k-ft	0.0 k-ft
PASS	0.08777	Flexure - Between Cols - Bottom	4.259 k-ft	48.524 k-ft
PASS	0.000229	Flexure - Right of Col #2 - Top	-0.01110 k-ft	48.524 k-ft
PASS	0.03308	Flexure - Right of Col #2 - Bottom	1.605 k-ft	48.524 k-ft

Soil Bearing

Load Combination...	Total Bearing	Eccentricity from Ftg CL	Actual Soil Bearing Stress		Allowable	Actual / Allow Ratio
			@ Left Edge	@ Right Edge		
D Only	14.61 k	-0.291 ft	0.79 ksf	0.43 ksf	3.00 ksf	0.262
+D+Lr	16.96 k	-0.259 ft	0.89 ksf	0.52 ksf	3.00 ksf	0.296
+D+0.750Lr	16.37 k	-0.267 ft	0.86 ksf	0.50 ksf	3.00 ksf	0.288
+0.60D	9.71 k	-0.263 ft	0.51 ksf	0.30 ksf	3.00 ksf	0.170

Overturing Stability

Load Combination...	Moments about Left Edge k-ft			Moments about Right Edge k-ft		
	Overturing	Resisting	Ratio	Overturing	Resisting	Ratio
D Only	0.00	0.00	999.000	0.00	0.00	999.000
+D+Lr	0.00	0.00	999.000	0.00	0.00	999.000
+D+0.750Lr	0.00	0.00	999.000	0.00	0.00	999.000
+0.60D	0.00	0.00	999.000	0.00	0.00	999.000

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
D Only	0.00 k	5.90 k	999
+D+Lr	0.00 k	6.60 k	999
+D+0.750Lr	0.00 k	6.42 k	999
+0.60D	0.00 k	4.14 k	999

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+0.60D	0.000	0.000	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.015	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.030	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.045	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.060	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.075	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.090	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.105	0	0.000	0	0.000	0.000	0.000
+0.60D	0.000	0.120	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.012	0.135	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.20D+1.60Lr	0.017	0.150	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.20D+1.60Lr	0.022	0.165	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.20D+1.60Lr	0.029	0.180	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.036	0.195	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.044	0.210	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001

Combined Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Z-Axis Footing Flexure - Maximum Values for Load Combination**

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60Lr	0.052	0.225	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.062	0.240	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.072	0.255	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.082	0.270	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.094	0.285	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.106	0.300	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.119	0.315	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.133	0.330	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.147	0.345	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.162	0.360	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.178	0.375	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.004
+1.20D+1.60Lr	0.194	0.390	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.004
+1.20D+1.60Lr	0.211	0.405	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.004
+1.20D+1.60Lr	0.229	0.420	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.005
+1.20D+1.60Lr	0.248	0.435	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.005
+1.20D+1.60Lr	0.267	0.450	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.005
+1.20D+1.60Lr	0.287	0.465	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.006
+1.20D+1.60Lr	0.307	0.480	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.006
+1.20D+1.60Lr	0.329	0.495	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.007
+1.20D+1.60Lr	0.351	0.510	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.007
+1.20D+1.60Lr	0.374	0.525	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.008
+1.20D+1.60Lr	0.397	0.540	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.008
+1.20D+1.60Lr	0.421	0.555	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.009
+1.20D+1.60Lr	0.446	0.570	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.009
+1.20D+1.60Lr	0.472	0.585	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.010
+1.20D+1.60Lr	0.498	0.600	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.010
+1.20D+1.60Lr	0.525	0.615	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.011
+1.20D+1.60Lr	0.553	0.630	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.011
+1.20D+1.60Lr	0.581	0.645	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.012
+1.20D+1.60Lr	0.610	0.660	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.013
+1.20D+1.60Lr	0.640	0.675	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.013
+1.20D+1.60Lr	0.670	0.690	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.014
+1.20D+1.60Lr	0.701	0.705	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.014
+1.20D+1.60Lr	0.733	0.720	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.015
+1.20D+1.60Lr	0.766	0.735	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.016
+1.20D+1.60Lr	0.799	0.750	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.016
+1.20D+1.60Lr	0.833	0.765	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.017
+1.20D+1.60Lr	0.867	0.780	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.018
+1.20D+1.60Lr	0.903	0.795	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.019
+1.20D+1.60Lr	0.938	0.810	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.019
+1.20D+1.60Lr	0.975	0.825	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.020
+1.20D+1.60Lr	1.012	0.840	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.021
+1.20D+1.60Lr	1.050	0.855	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.022
+1.20D+1.60Lr	1.089	0.870	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.022
+1.20D+1.60Lr	1.128	0.885	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.023
+1.20D+1.60Lr	1.168	0.900	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.024
+1.20D+1.60Lr	1.209	0.915	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.025
+1.20D+1.60Lr	1.250	0.930	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.026
+1.20D+1.60Lr	1.292	0.945	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.027
+1.20D+1.60Lr	1.335	0.960	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.028
+1.20D+1.60Lr	1.378	0.975	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.028
+1.20D+1.60Lr	1.422	0.990	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.029
+1.20D+1.60Lr	1.467	1.005	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.030
+1.20D+1.60Lr	1.512	1.020	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.031
+1.20D+1.60Lr	1.558	1.035	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.032
+1.20D+1.60Lr	1.605	1.050	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.033
+1.20D+1.60Lr	1.652	1.065	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.034
+1.20D+1.60Lr	1.700	1.080	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.035
+1.20D+1.60Lr	1.749	1.095	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.036
+1.20D+1.60Lr	1.798	1.110	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.037
+1.20D+1.60Lr	1.848	1.125	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.038
+1.20D+1.60Lr	1.899	1.140	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.039
+1.20D+1.60Lr	1.950	1.155	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.040

Combined Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Z-Axis Footing Flexure - Maximum Values for Load Combination**

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60Lr	2.002	1.170	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.041
+1.20D+1.60Lr	2.055	1.185	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.042
+1.20D+1.60Lr	2.108	1.200	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.043
+1.20D+1.60Lr	2.162	1.215	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.045
+1.20D+1.60Lr	2.217	1.230	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.046
+1.20D+1.60Lr	2.272	1.245	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.047
+1.20D+1.60Lr	2.328	1.260	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.048
+1.20D+1.60Lr	2.384	1.275	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.049
+1.20D+1.60Lr	2.442	1.290	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.050
+1.20D+1.60Lr	2.499	1.305	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.052
+1.20D+1.60Lr	2.558	1.320	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.053
+1.20D+1.60Lr	2.617	1.335	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.054
+1.20D+1.60Lr	2.677	1.350	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.055
+1.20D+1.60Lr	2.737	1.365	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.056
+1.20D+1.60Lr	2.798	1.380	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.058
+1.20D+1.60Lr	2.860	1.395	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.059
+1.20D+1.60Lr	2.923	1.410	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.986	1.425	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.062
+1.20D+1.60Lr	3.049	1.440	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.063
+1.20D+1.60Lr	3.113	1.455	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.064
+1.20D+1.60Lr	3.178	1.470	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.066
+1.20D+1.60Lr	3.244	1.485	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.067
+1.20D+1.60Lr	3.310	1.500	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.068
+1.20D+1.60Lr	3.376	1.515	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.070
+1.20D+1.60Lr	3.440	1.530	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.071
+1.20D+1.60Lr	3.503	1.545	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.072
+1.20D+1.60Lr	3.564	1.560	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.073
+1.20D+1.60Lr	3.623	1.575	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.075
+1.20D+1.60Lr	3.681	1.590	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.076
+1.20D+1.60Lr	3.738	1.605	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.077
+1.20D+1.60Lr	3.793	1.620	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.078
+1.20D+1.60Lr	3.846	1.635	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.079
+1.20D+1.60Lr	3.898	1.650	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.080
+1.20D+1.60Lr	3.948	1.665	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.081
+1.20D+1.60Lr	3.997	1.680	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.082
+1.20D+1.60Lr	4.044	1.695	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.083
+1.20D+1.60Lr	4.090	1.710	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.084
+1.20D+1.60Lr	4.134	1.725	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.085
+1.20D+1.60Lr	4.176	1.740	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.086
+1.20D+1.60Lr	4.217	1.755	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.087
+1.20D+1.60Lr	4.257	1.770	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.088
+1.20D+1.60Lr	4.295	1.785	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.089
+1.20D+1.60Lr	4.331	1.800	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.089
+1.20D+1.60Lr	4.366	1.815	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.090
+1.20D+1.60Lr	4.399	1.830	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.091
+1.20D+1.60Lr	4.430	1.845	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.091
+1.20D+1.60Lr	4.461	1.860	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.092
+1.20D+1.60Lr	4.489	1.875	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.093
+1.20D+1.60Lr	4.516	1.890	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.093
+1.20D+1.60Lr	4.541	1.905	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.094
+1.20D+1.60Lr	4.565	1.920	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.094
+1.20D+1.60Lr	4.587	1.935	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.095
+1.20D+1.60Lr	4.608	1.950	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.095
+1.20D+1.60Lr	4.627	1.965	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.095
+1.20D+1.60Lr	4.644	1.980	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.096
+1.20D+1.60Lr	4.660	1.995	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.096
+1.20D+1.60Lr	4.675	2.010	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.096
+1.20D+1.60Lr	4.687	2.025	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.699	2.040	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.708	2.055	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.716	2.070	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.723	2.085	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.728	2.100	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097

Combined Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Z-Axis Footing Flexure - Maximum Values for Load Combination**

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60Lr	4.731	2.115	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.733	2.130	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.098
+1.20D+1.60Lr	4.733	2.145	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.098
+1.20D+1.60Lr	4.731	2.160	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.098
+1.20D+1.60Lr	4.728	2.175	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.724	2.190	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.718	2.205	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.710	2.220	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.700	2.235	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.689	2.250	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.097
+1.20D+1.60Lr	4.677	2.265	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.096
+1.20D+1.60Lr	4.663	2.280	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.096
+1.20D+1.60Lr	4.647	2.295	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.096
+1.20D+1.60Lr	4.630	2.310	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.095
+1.20D+1.60Lr	4.611	2.325	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.095
+1.20D+1.60Lr	4.590	2.340	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.095
+1.20D+1.60Lr	4.568	2.355	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.094
+1.20D+1.60Lr	4.544	2.370	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.094
+1.20D+1.60Lr	4.519	2.385	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.093
+1.20D+1.60Lr	4.492	2.400	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.093
+1.20D+1.60Lr	4.464	2.415	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.092
+1.20D+1.60Lr	4.434	2.430	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.091
+1.20D+1.60Lr	4.402	2.445	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.091
+1.20D+1.60Lr	4.368	2.460	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.090
+1.20D+1.60Lr	4.334	2.475	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.089
+1.20D+1.60Lr	4.297	2.490	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.089
+1.20D+1.60Lr	4.259	2.505	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.088
+1.20D+1.60Lr	4.221	2.520	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.087
+1.20D+1.60Lr	4.184	2.535	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.086
+1.20D+1.60Lr	4.147	2.550	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.085
+1.20D+1.60Lr	4.111	2.565	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.085
+1.20D+1.60Lr	4.075	2.580	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.084
+1.20D+1.60Lr	4.040	2.595	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.083
+1.20D+1.60Lr	4.005	2.610	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.083
+1.20D+1.60Lr	3.971	2.625	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.082
+1.20D+1.60Lr	3.938	2.640	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.081
+1.20D+1.60Lr	3.905	2.655	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.080
+1.20D+1.60Lr	3.873	2.670	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.080
+1.20D+1.60Lr	3.841	2.685	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.079
+1.20D+1.60Lr	3.810	2.700	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.079
+1.20D+1.60Lr	3.779	2.715	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.078
+1.20D+1.60Lr	3.749	2.730	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.077
+1.20D+1.60Lr	3.720	2.745	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.077
+1.20D+1.60Lr	3.691	2.760	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.076
+1.20D+1.60Lr	3.662	2.775	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.075
+1.20D+1.60Lr	3.634	2.790	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.075
+1.20D+1.60Lr	3.607	2.805	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.074
+1.20D+1.60Lr	3.580	2.820	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.074
+1.20D+1.60Lr	3.554	2.835	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.073
+1.20D+1.60Lr	3.528	2.850	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.073
+1.20D+1.60Lr	3.503	2.865	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.072
+1.20D+1.60Lr	3.478	2.880	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.072
+1.20D+1.60Lr	3.454	2.895	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.071
+1.20D+1.60Lr	3.431	2.910	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.071
+1.20D+1.60Lr	3.408	2.925	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.070
+1.20D+1.60Lr	3.385	2.940	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.070
+1.20D+1.60Lr	3.363	2.955	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.069
+1.20D+1.60Lr	3.342	2.970	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.069
+1.20D+1.60Lr	3.321	2.985	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.068
+1.20D+1.60Lr	3.301	3.000	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.068
+1.20D+1.60Lr	3.281	3.015	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.068
+1.20D+1.60Lr	3.262	3.030	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.067
+1.20D+1.60Lr	3.243	3.045	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.067

Combined Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Z-Axis Footing Flexure - Maximum Values for Load Combination**

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60Lr	3.225	3.060	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.066
+1.20D+1.60Lr	3.208	3.075	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.066
+1.20D+1.60Lr	3.190	3.090	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.066
+1.20D+1.60Lr	3.174	3.105	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.065
+1.20D+1.60Lr	3.158	3.120	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.065
+1.20D+1.60Lr	3.142	3.135	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.065
+1.20D+1.60Lr	3.127	3.150	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.064
+1.20D+1.60Lr	3.113	3.165	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.064
+1.20D+1.60Lr	3.099	3.180	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.064
+1.20D+1.60Lr	3.085	3.195	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.064
+1.20D+1.60Lr	3.073	3.210	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.063
+1.20D+1.60Lr	3.060	3.225	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.063
+1.20D+1.60Lr	3.048	3.240	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.063
+1.20D+1.60Lr	3.037	3.255	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.063
+1.20D+1.60Lr	3.026	3.270	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.062
+1.20D+1.60Lr	3.016	3.285	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.062
+1.20D+1.60Lr	3.006	3.300	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.062
+1.20D+1.60Lr	2.997	3.315	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.062
+1.20D+1.60Lr	2.988	3.330	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.062
+1.20D+1.60Lr	2.980	3.345	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.972	3.360	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.965	3.375	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.958	3.390	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.952	3.405	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.946	3.420	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.941	3.435	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.936	3.450	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.061
+1.20D+1.60Lr	2.932	3.465	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.929	3.480	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.925	3.495	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.922	3.510	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.919	3.525	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.915	3.540	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.911	3.555	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.906	3.570	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.901	3.585	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.895	3.600	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.889	3.615	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.060
+1.20D+1.60Lr	2.883	3.630	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.059
+1.20D+1.60Lr	2.876	3.645	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.059
+1.20D+1.60Lr	2.868	3.660	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.059
+1.20D+1.60Lr	2.860	3.675	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.059
+1.20D+1.60Lr	2.851	3.690	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.059
+1.20D+1.60Lr	2.842	3.705	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.059
+1.20D+1.60Lr	2.833	3.720	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.058
+1.20D+1.60Lr	2.823	3.735	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.058
+1.20D+1.60Lr	2.812	3.750	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.058
+1.20D+1.60Lr	2.801	3.765	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.058
+1.20D+1.60Lr	2.790	3.780	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.057
+1.20D+1.60Lr	2.778	3.795	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.057
+1.20D+1.60Lr	2.765	3.810	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.057
+1.20D+1.60Lr	2.752	3.825	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.057
+1.20D+1.60Lr	2.739	3.840	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.056
+1.20D+1.60Lr	2.725	3.855	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.056
+1.20D+1.60Lr	2.710	3.870	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.056
+1.20D+1.60Lr	2.695	3.885	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.056
+1.20D+1.60Lr	2.680	3.900	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.055
+1.20D+1.60Lr	2.664	3.915	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.055
+1.20D+1.60Lr	2.647	3.930	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.055
+1.20D+1.60Lr	2.630	3.945	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.054
+1.20D+1.60Lr	2.613	3.960	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.054
+1.20D+1.60Lr	2.595	3.975	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.053
+1.20D+1.60Lr	2.576	3.990	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.053

Combined Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Z-Axis Footing Flexure - Maximum Values for Load Combination**

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60Lr	2.558	4.005	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.053
+1.20D+1.60Lr	2.538	4.020	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.052
+1.20D+1.60Lr	2.518	4.035	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.052
+1.20D+1.60Lr	2.498	4.050	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.051
+1.20D+1.60Lr	2.477	4.065	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.051
+1.20D+1.60Lr	2.455	4.080	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.051
+1.20D+1.60Lr	2.433	4.095	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.050
+1.20D+1.60Lr	2.410	4.110	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.050
+1.20D+1.60Lr	2.387	4.125	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.049
+1.20D+1.60Lr	2.364	4.140	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.049
+1.20D+1.60Lr	2.340	4.155	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.048
+1.20D+1.60Lr	2.315	4.170	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.048
+1.20D+1.60Lr	2.290	4.185	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.047
+1.20D+1.60Lr	2.264	4.200	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.047
+1.20D+1.60Lr	2.238	4.215	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.046
+1.20D+1.60Lr	2.212	4.230	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.046
+1.20D+1.60Lr	2.184	4.245	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.045
+1.20D+1.60Lr	2.157	4.260	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.044
+1.20D+1.60Lr	2.128	4.275	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.044
+1.20D+1.60Lr	2.100	4.290	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.043
+1.20D+1.60Lr	2.070	4.305	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.043
+1.20D+1.60Lr	2.041	4.320	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.042
+1.20D+1.60Lr	2.010	4.335	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.041
+1.20D+1.60Lr	1.979	4.350	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.041
+1.20D+1.60Lr	1.948	4.365	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.040
+1.20D+1.60Lr	1.916	4.380	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.039
+1.20D+1.60Lr	1.884	4.395	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.039
+1.20D+1.60Lr	1.851	4.410	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.038
+1.20D+1.60Lr	1.817	4.425	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.037
+1.20D+1.60Lr	1.783	4.440	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.037
+1.20D+1.60Lr	1.748	4.455	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.036
+1.20D+1.60Lr	1.713	4.470	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.035
+1.20D+1.60Lr	1.678	4.485	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.035
+1.20D+1.60Lr	1.641	4.500	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.034
+1.20D+1.60Lr	1.605	4.515	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.033
+1.20D+1.60Lr	1.569	4.530	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.032
+1.20D+1.60Lr	1.534	4.545	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.032
+1.20D+1.60Lr	1.499	4.560	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.031
+1.20D+1.60Lr	1.464	4.575	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.030
+1.20D+1.60Lr	1.430	4.590	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.029
+1.20D+1.60Lr	1.397	4.605	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.029
+1.20D+1.60Lr	1.363	4.620	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.028
+1.20D+1.60Lr	1.331	4.635	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.027
+1.20D+1.60Lr	1.298	4.650	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.027
+1.20D+1.60Lr	1.266	4.665	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.026
+1.20D+1.60Lr	1.235	4.680	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.025
+1.20D+1.60Lr	1.204	4.695	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.025
+1.20D+1.60Lr	1.173	4.710	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.024
+1.20D+1.60Lr	1.143	4.725	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.024
+1.20D+1.60Lr	1.113	4.740	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.023
+1.20D+1.60Lr	1.083	4.755	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.022
+1.20D+1.60Lr	1.054	4.770	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.022
+1.20D+1.60Lr	1.026	4.785	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.021
+1.20D+1.60Lr	0.997	4.800	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.021
+1.20D+1.60Lr	0.970	4.815	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.020
+1.20D+1.60Lr	0.942	4.830	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.019
+1.20D+1.60Lr	0.915	4.845	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.019
+1.20D+1.60Lr	0.889	4.860	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.018
+1.20D+1.60Lr	0.863	4.875	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.018
+1.20D+1.60Lr	0.837	4.890	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.017
+1.20D+1.60Lr	0.812	4.905	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.017
+1.20D+1.60Lr	0.787	4.920	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.016
+1.20D+1.60Lr	0.762	4.935	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.016

Combined Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Z-Axis Footing Flexure - Maximum Values for Load Combination**

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60Lr	0.738	4.950	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.015
+1.20D+1.60Lr	0.714	4.965	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.015
+1.20D+1.60Lr	0.691	4.980	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.014
+1.20D+1.60Lr	0.668	4.995	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.014
+1.20D+1.60Lr	0.646	5.010	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.013
+1.20D+1.60Lr	0.624	5.025	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.013
+1.20D+1.60Lr	0.602	5.040	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.012
+1.20D+1.60Lr	0.581	5.055	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.012
+1.20D+1.60Lr	0.560	5.070	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.012
+1.20D+1.60Lr	0.539	5.085	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.011
+1.20D+1.60Lr	0.519	5.100	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.011
+1.20D+1.60Lr	0.500	5.115	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.010
+1.20D+1.60Lr	0.480	5.130	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.010
+1.20D+1.60Lr	0.461	5.145	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.010
+1.20D+1.60Lr	0.443	5.160	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.009
+1.20D+1.60Lr	0.425	5.175	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.009
+1.20D+1.60Lr	0.407	5.190	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.008
+1.20D+1.60Lr	0.390	5.205	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.008
+1.20D+1.60Lr	0.373	5.220	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.008
+1.20D+1.60Lr	0.356	5.235	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.007
+1.20D+1.60Lr	0.340	5.250	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.007
+1.20D+1.60Lr	0.324	5.265	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.007
+1.20D+1.60Lr	0.309	5.280	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.006
+1.20D+1.60Lr	0.294	5.295	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.006
+1.20D+1.60Lr	0.279	5.310	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.006
+1.20D+1.60Lr	0.265	5.325	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.005
+1.20D+1.60Lr	0.251	5.340	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.005
+1.20D+1.60Lr	0.237	5.355	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.005
+1.20D+1.60Lr	0.224	5.370	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.005
+1.20D+1.60Lr	0.211	5.385	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.004
+1.20D+1.60Lr	0.199	5.400	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.004
+1.20D+1.60Lr	0.187	5.415	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.004
+1.20D+1.60Lr	0.175	5.430	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.004
+1.20D+1.60Lr	0.164	5.445	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.153	5.460	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.143	5.475	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.133	5.490	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.123	5.505	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.003
+1.20D+1.60Lr	0.113	5.520	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.104	5.535	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.096	5.550	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.087	5.565	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.079	5.580	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.002
+1.20D+1.60Lr	0.072	5.595	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.065	5.610	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.058	5.625	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.051	5.640	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.045	5.655	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.039	5.670	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.034	5.685	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.029	5.700	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.001
+1.20D+1.60Lr	0.024	5.715	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.20D+1.60Lr	0.020	5.730	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.20D+1.60Lr	0.015	5.745	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.20D+1.60Lr	0.012	5.760	Bottom	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.20D+1.60Lr	0.000	5.775	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	5.790	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	5.805	0	0.000	0	0.000	0.000	0.000
+1.40D	-0.010	5.820	Top	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.40D	-0.011	5.835	Top	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.40D	-0.011	5.850	Top	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.40D	-0.011	5.865	Top	1.037	ACI 7.6.1.1	1.240	48.524	0.000
+1.40D	-0.011	5.880	Top	1.037	ACI 7.6.1.1	1.240	48.524	0.000

Combined Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F6**Z-Axis Footing Flexure - Maximum Values for Load Combination**

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn				
+1.40D	-0.010	5.895	Top	1.037	ACI 7.6.1.1	1.240	48.524	0.000				
+1.40D	0.000	5.910	0	0.000	0	0.000	0.000	0.000				
+1.40D	0.000	5.925	0	0.000	0	0.000	0.000	0.000				
+1.40D	0.000	5.940	0	0.000	0	0.000	0.000	0.000				
+1.40D	0.000	5.955	0	0.000	0	0.000	0.000	0.000				
+1.40D	0.000	5.970	0	0.000	0	0.000	0.000	0.000				
+1.40D	0.000	5.985	0	0.000	0	0.000	0.000	0.000				
+1.40D	0.000	6.000	0	0.000	0	0.000	0.000	0.000				
One Way Shear	Left of Column #1	Right of Column #1	Left of Column #2	Right of Column #2								
Load Combination...	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D	5.1	46.7	0.108	3.1	46.7	0.066	2.0	46.7	0.044	3.8	46.7	0.081
+1.20D+0.50Lr	4.7	46.7	0.100	2.7	46.7	0.058	2.1	46.7	0.044	3.3	46.7	0.071
+1.20D	4.3	46.7	0.093	2.6	46.7	0.057	1.7	46.7	0.037	3.3	46.7	0.070
+1.20D+1.60Lr	5.5	46.7	0.117	2.8	46.7	0.060	2.8	46.7	0.059	3.4	46.7	0.073
+0.90D	3.2	46.7	0.070	2.0	46.7	0.042	1.3	46.7	0.028	2.4	46.7	0.052
Two Way Shear	Column #1						Column #2					
Load Combination...	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D		8.6	164.3	0.052			9.3	164.3	0.056			
+1.20D+0.50Lr		8.0	164.3	0.049			8.6	164.3	0.052			
+1.20D		7.4	164.3	0.045			7.9	164.3	0.048			
+1.20D+1.60Lr		9.4	164.3	0.057			10.0	164.3	0.061			
+0.90D		5.5	164.3	0.034			6.0	164.3	0.036			

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F7 @ C8/2B-3/2B-4/1B-2**Code References**

Governing Code : IBC 2018, CBC 2019

Referenced Design Standard(s) : ACI 318-19*

Load Combinations Used : ASCE 7-22 / IBC 2024

*User-selected, not referenced by : IBC 2018, CBC 2019

Rho (or Omega) = 1.00

General Information**Material Properties**

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	2.0 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

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

Dimensions

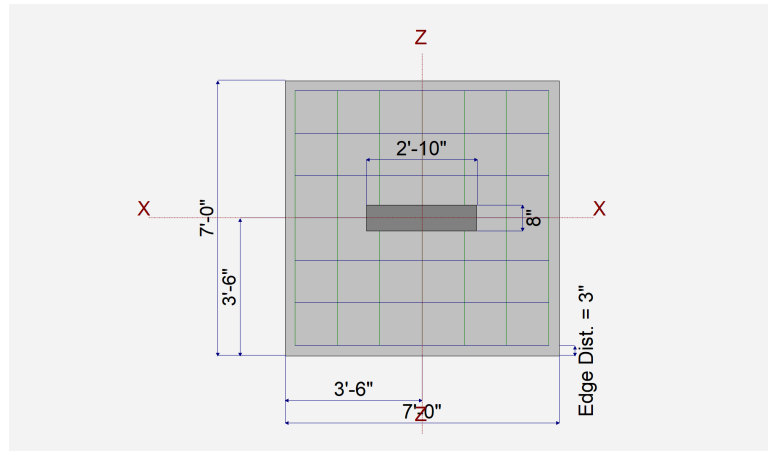
Width parallel to X-X Axis	=	7.0 ft
Length parallel to Z-Z Axis	=	7.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

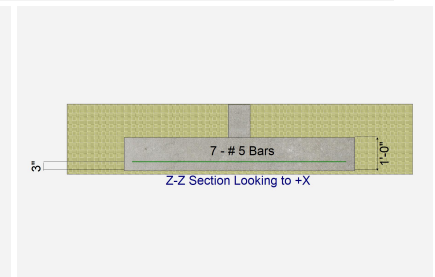
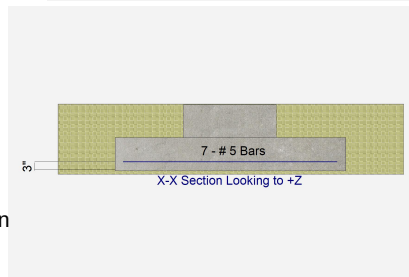
px : parallel to X-X Axis	=	34.0 in
pz : parallel to Z-Z Axis	=	8.0 in
Height	=	12.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

**Bottom Reinforcing**

Bars parallel to X-X Axis (resisting Z Flexure)		
Number of Bars	=	7.0
Reinforcing Bar Size	=	# 5
Bars parallel to Z-Z Axis (resisting X Flexure)		
Number of Bars	=	7.0
Reinforcing Bar Size	=	# 5
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in

**Top Reinforcing**

Bars parallel to X-X Axis (resisting Z Flexure)		
Number of Bars	=	7
Reinforcing Bar Size	=	5
Bars parallel to Z-Z Axis (resisting X Flexure)		
Number of Bars	=	7
Reinforcing Bar Size	=	5
Rebar Centerline to Edge of Concrete... at Top of footing	=	3.0 in

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F7 @ C8/2B-3/2B-4/1B-2**Applied Loads**

		D	Lr	L	S	W	E	H
P : Vertical Load	=	57.640	9.030	4.140	0.000	0.000	0.000	0.000 k
OB : Overburden	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ksf
M-xx	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
M-zz	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k-ft
V-x	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k
V-z	=	0.000	0.000	0.000	0.000	0.000	0.000	0.000 k

DESIGN SUMMARY**Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5430	Soil Bearing	1.629 ksf	3.0 ksf	+D+0.750Lr+0.750L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	999.0	Sliding - X-X	0.0 k	23.603 k	D Only
PASS	999.0	Sliding - Z-Z	0.0 k	23.603 k	D Only
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.3195	Z Flexure (+X) Bot Tens	3.875 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.3195	Z Flexure (-X) Bot Tens	3.875 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.7381	X Flexure (+Z) Bot Tens	8.954 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.7381	X Flexure (-Z) Bot Tens	8.954 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60Lr+L
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.4709	1-way Shear (+X)	21.992 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.4709	1-way Shear (-X)	21.992 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.8674	1-way Shear (+Z)	40.512 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.8674	1-way Shear (-Z)	40.512 psi	46.704 psi	+1.20D+1.60Lr+L
PASS	0.6009	2-way Punching	72.598 psi	120.821 psi	+1.20D+1.60Lr+L

Detailed Results**Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.427	1.427	n/a	n/a	0.476
X-X, +D+L	3.0	n/a	0.0	1.512	1.512	n/a	n/a	0.504
X-X, +D+Lr	3.0	n/a	0.0	1.611	1.611	n/a	n/a	0.537
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	1.629	1.629	n/a	n/a	0.543
X-X, +D+0.750L	3.0	n/a	0.0	1.490	1.490	n/a	n/a	0.497
X-X, +0.60D	3.0	n/a	0.0	0.8563	0.8563	n/a	n/a	0.285
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.427	1.427	0.476
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	1.512	1.512	0.504
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.611	1.611	0.537
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	1.629	1.629	0.543
Z-Z, +D+0.750L	3.0	0.0	n/a	n/a	n/a	1.490	1.490	0.497
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.8563	0.8563	0.285

Overturning Stability

Rotation Axis & Load Combination...	Moment Sum About Negative Edge (k-ft)				Moment Sum About Positive Edge (k-ft)			
	Overturning	Resisting	Ratio	Status	Overturning	Resisting	Ratio	Status
Footing Has NO Overturning								

General Footing

Project File: MILO - 041525.ec6

LIC#: KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F7 @ C8/2B-3/2B-4/1B-2**Sliding Stability**

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	8.227	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	8.227	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	8.192	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+1.60L	8.192	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	7.730	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	7.730	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	8.954	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+L	8.954	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	8.530	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	8.530	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	7.475	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	7.475	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	7.052	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	7.052	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	7.937	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+L	7.937	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	7.264	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50L	7.264	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	5.289	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	5.289	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.561	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	3.561	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	3.545	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+1.60L	3.545	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.345	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.345	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	3.875	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+L	3.875	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	3.692	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	3.692	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.235	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	3.235	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	3.052	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	3.052	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	3.435	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+L	3.435	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.144	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50L	3.144	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.289	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	2.289	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
---------------------------------	------------	------	--------------------	------------------	------------------	-------------------	----------------	--------

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	20.21 psi	20.21 psi	20.21 psi	46.70 psi	0.43	OK
+1.20D+0.50Lr+1.60L	20.12 psi	20.12 psi	20.12 psi	46.70 psi	0.43	OK
+1.20D+1.60L	18.99 psi	18.99 psi	18.99 psi	46.70 psi	0.41	OK
+1.20D+1.60Lr+L	21.99 psi	21.99 psi	21.99 psi	46.70 psi	0.47	OK
+1.20D+1.60Lr	20.95 psi	20.95 psi	20.95 psi	46.70 psi	0.45	OK
+1.20D+L	18.36 psi	18.36 psi	18.36 psi	46.70 psi	0.39	OK
+1.20D	17.32 psi	17.32 psi	17.32 psi	46.70 psi	0.37	OK
+1.20D+0.50Lr+L	19.50 psi	19.50 psi	19.50 psi	46.70 psi	0.42	OK
+1.20D+0.50L	17.84 psi	17.84 psi	17.84 psi	46.70 psi	0.38	OK
+0.90D	12.99 psi	12.99 psi	12.99 psi	46.70 psi	0.28	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	37.23 psi	37.23 psi	37.23 psi	46.70 psi	0.80	OK

General Footing

Project File: MILO - 041525.ec6

LIC# : KW-06017089, Build:20.26.05.05

ALEX KONDRAT & ASSOCIATES INC

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: F7 @ C8/2B-3/2B-4/1B-2**One Way Shear Z**

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D+0.50Lr+1.60L	37.06 psi	37.06 psi	37.06 psi	46.70 psi	0.79	OK
+1.20D+1.60L	34.97 psi	34.97 psi	34.97 psi	46.70 psi	0.75	OK
+1.20D+1.60Lr+L	40.51 psi	40.51 psi	40.51 psi	46.70 psi	0.87	OK
+1.20D+1.60Lr	38.60 psi	38.60 psi	38.60 psi	46.70 psi	0.83	OK
+1.20D+L	33.82 psi	33.82 psi	33.82 psi	46.70 psi	0.72	OK
+1.20D	31.91 psi	31.91 psi	31.91 psi	46.70 psi	0.68	OK
+1.20D+0.50Lr+L	35.91 psi	35.91 psi	35.91 psi	46.70 psi	0.77	OK
+1.20D+0.50L	32.87 psi	32.87 psi	32.87 psi	46.70 psi	0.70	OK
+0.90D	23.93 psi	23.93 psi	23.93 psi	46.70 psi	0.51	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	66.71 psi	120.82 psi	0.55	OK
+1.20D+0.50Lr+1.60L	66.42 psi	120.82 psi	0.55	OK
+1.20D+1.60L	62.67 psi	120.82 psi	0.52	OK
+1.20D+1.60Lr+L	72.60 psi	120.82 psi	0.60	OK
+1.20D+1.60Lr	69.16 psi	120.82 psi	0.57	OK
+1.20D+L	60.61 psi	120.82 psi	0.50	OK
+1.20D	57.18 psi	120.82 psi	0.47	OK
+1.20D+0.50Lr+L	64.36 psi	120.82 psi	0.53	OK
+1.20D+0.50L	58.89 psi	120.82 psi	0.49	OK
+0.90D	42.88 psi	120.82 psi	0.35	OK