LANE SUPPLY, INC.

120 Fairview
Arlington, TX 76010
817-261-9116

DESIGN CALCULATIONS FOR :

Chick-fil-A #05248 Outside Meal Delivery Canopy
SWC Highway 50 & State Route 291
Lee's Summit, MO

Twelve-Column Canopy :	31'-3" X 76'-5" Canopy
Lane Reference Number :	LSC-78798
Date :	12-Nov-24

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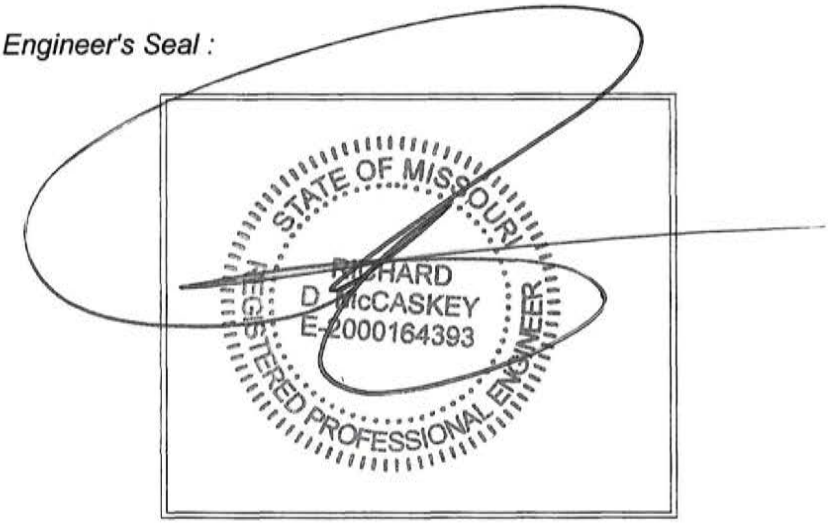

C.O.A. 2001015838

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Calculations By:	**Lane Supply, Inc.**	*LSC -*	78798
Customer:	Chick-fil-A #05248 Outside Meal Delivery Canopy	*By:*	CP
Project:	31'-3" X 76'-5" Canopy	*Check:*	

Code: **2018 International Building Code**

Roof Loads:

Dead Load =	3.00	psf	(SL-316 Deck)
Live/Snow Load =	20.00	psf	
TOTAL =	23.00	psf	

Fascia Load:

Height =	10.00	in.
Dead Load =	5.83	plf

Wind Loads:

Risk Category =	II		
V, ULT Speed =	116	m.p.h. Exp	C
V, ASD Speed =	90	m.p.h. Exp	C
Height =	20	ft	
Kd =	0.85		
Kh =	0.90		
G =	0.85		
qz =	15.81	psf	

Lateral Load =	1.0	(H)•qz =	16.00	psf
Deck Uplift =	-1.7	(V)•G•qz =	-22.85	psf
Frame Uplift =	-1.1	(V)•G•qz =	-14.78	psf

Seismic:

Base Shear : V = CS • W = 0.085 • W

Site Class =	D	(Default)	
Risk Category =	II		
Ss(0.2) =	0.100		
S1(1.0) =	0.068		
Fa =	1.60		
Fv =	2.40		
SMS = Fa•Ss =	0.160	(11.4-1)	
SM1 = Fv•S1 =	0.163	(11.4-2)	
SDS = 2/3•SMS =	0.107	(11.4-3)	
SD1 = 2/3•SM1 =	0.109	(11.4-4)	
R =	1.25		
CS = (SDS/R) =	0.085	(12.8-2)	

Seismic Design Category Based on SDS :	A
Seismic Design Category Based on SD1 :	B
Design Category :	B

Section 7.1.2--Symbols & Notation

Ce = 1.2 Exposure Factor as determined from Table 7.3-1
Ct = 1.2 Thermal factor as determined from Table 7.3-2
D = Snow Density in pcf as determined from Eq. 7.7-1
hb = Height of balanced snow load determined by dividing Pf by D, in feet.
hd = Height of snow drift, in feet
hc = Clear height from top of balanced snow to top of parapet, ft
hr = 6.00 = Fascia height, ft
Is = 1.0 = Importance factor (see Table 1.5-2).
Pf = Snow load on flat roofs, psf.
Pg = 20 =ground snow, psf.
Pd = Maximum intensity of drift surcharge load, psf.
lu = 31.708333 = Length of roof upwind of the drift, feet
w = Width of snow drift, in feet

Section 7.3--Flat-Roof Snow Loads, Pf

The snow load, Pf, on a roof with a slope equal to or less than 5° shall be calculated in psf using equation 7.3-1, but not less than th following mimimum values for low slope roofs: where Pg is 20 psf or less Pf = I(Pg), where Pg exceeds 20 psf, Pf = 20 (I).

Section 7.7 & Section 7.8

The geometrey of the surcharge load due to snow drifting shall be approximated by a triangle as shown in figure 7.7-2. Drift loads shall be superimposed on the balanced snow load. If hc/hb is less than 0.2, drift loads are not required to be applied.
The height of such drifts shall be taken as 0.75 x hd as determined from Fig 7.6-1, with lu equal to the length of the roof upwind of the projection or parapet wall. If the side of a roof projection is less than 15 ft long, a drift load is not required to be applied to that side. If the height, hd, is equal to or less than hc, the drift width shall equal 4hd and the drft height shall equal hd. If this height exceeds hc, the drift width, w, shall equal 4 hd^2/hc and the drift height shall equal hc. However, the drift width w shall not exceed 8hc. The maximum intensity of the drift surcharge load, pd, equals hd x D where the snow density, D, is defined by Eq 7.7-

Section 7.10--Rain-On-Snow Surcharge Load

For locations where Pg is 20 psf or less but not zero, all roofs with a slope less than W/50, shall have a 5 psf rain-on-snow surcharge load appled to establish the design snow loads. This additional load applies only to the slped roof (balanced) load case and need not be used in combination with drift, sliding, unbalanced, or partial loads.

Pf = 0.7 x Ce x Ct x Is x Pg *Eq 7.3-1*
Pf = 20.0 psf
hd = 0.75 x (0.43(lu)^1/3 x (Pg+10)^1/4-1.5) *Ref. Fig. 7.6-1*
hd = 1.26 ft
D = 0.13Pg + 14 < 30 psf *Eq 7.7-1*
D = 16.60 psf
hb = 1.20 ft
hc =hr-hb = 4.80 ft
hc/hb = 3.98
Consider Drift
w = 5.06 ft

Pd = D x hd<D x hc
Pd = 20.98 psf

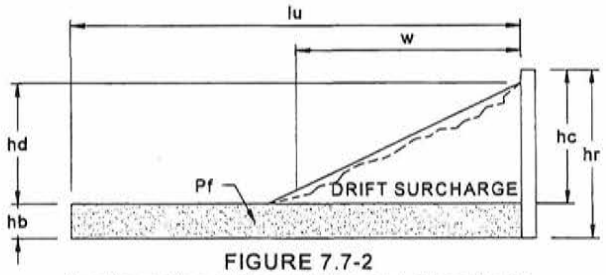
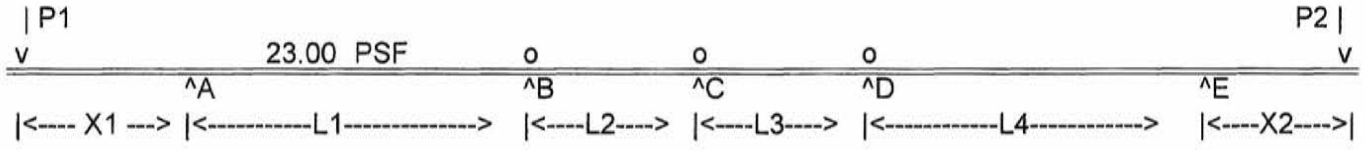


FIGURE 7.7-2
Configuration of Snow Drifts on Lower Roofs



Wd=	3.00	psf	X1=	1.75	ft
Wl=	20.00	psf	L1=	6.50	ft
Deck : Ww=	-22.85	psf	L2=	6.50	ft
Frame : Ww=	-14.78	psf	L3=	6.50	ft
P1=	5.83	plf	L4=	7.00	ft
P2=	5.83	plf	X2=	3.04	ft

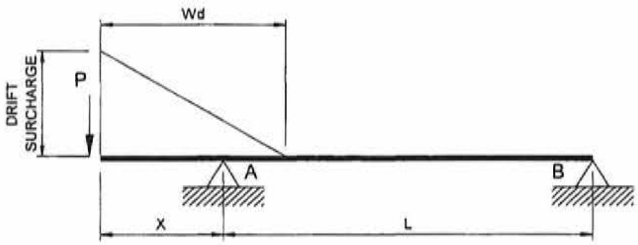
MAd=	14.80	ft-lbs/ft
MAl=	30.63	ft-lbs/ft
Deck : MAw=	-34.99	ft-lbs/ft
MA(d+l)=	45.43	ft-lbs/ft
Deck : MA(d+w)=	-20.18	ft-lbs/ft
MAB(d+l)=	114.18	ft-lbs/ft
Deck : MAB(d+w)=	-94.97	ft-lbs/ft
MBC(d+l)=	121.47	ft-lbs/ft
Deck : MBC(d+w)=	-104.82	ft-lbs/ft
MCD(d+l)=	121.47	ft-lbs/ft
Deck : MCD(d+w)=	-104.82	ft-lbs/ft
MDE(d+l)=	125.51	ft-lbs/ft
Deck : MDE(d+w)=	-87.35	ft-lbs/ft
MEd=	31.62	ft-lbs/ft
MEl=	92.52	ft-lbs/ft
Deck : MEw=	-105.69	ft-lbs/ft
ME(d+l)=	124.14	ft-lbs/ft
Deck : ME(d+w)=	-74.07	ft-lbs/ft

RAd=	23.11	plf
RAl=	104.71	plf
Frame : RAw=	-77.40	plf
RA(d+l)=	127.82	plf
Frame : RA(d+w)=	-54.29	plf
RBd=	17.22	plf
RBl=	130.00	plf
Frame : RBw=	-92.61	plf
RB(d+l)=	147.22	plf
Frame : RB(d+w)=	-75.39	plf
RCd=	19.50	plf
RCl=	130.00	plf
Frame : RCw=	-96.09	plf
RC(d+l)=	149.50	plf
Frame : RC(d+w)=	-76.59	plf
RDd=	15.73	plf
RDl=	135.00	plf
Frame : RDw=	-90.02	plf
RD(d+l)=	150.73	plf
Frame : RD(d+w)=	-74.29	plf
REd=	29.98	plf
REl=	144.05	plf
Frame : REw=	-106.48	plf
RE(d+l)=	174.03	plf
Frame : RE(d+w)=	-76.50	plf

USE 20 GAUGE GRADE C DECK

+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi

wd=	3.00	psf
ws=	20.00	psf
Deck : ww=	-22.85	psf
Frame : ww=	-14.78	psf
P=	5.83	plf
(Drift Surcharge)Pm=	20.98	psf
L=	6.50	ft
X=	1.75	ft
(Drift Length) Wd=	5.06	ft



RAd=	23.11	plf	RBd=	7.47	plf
RAs=	158.28	plf	RBs=	59.76	plf
Frame : RAw=	-77.40	plf	Frame : RBw=	-44.56	plf
Deck : RAw=	-119.62	plf	Deck : RBw=	-68.87	plf
RA(d+s)=	181.39	plf	RB(d+s)=	67.23	plf
Frame : RA(d+w)=	-54.29	plf	Frame : RB(d+w)=	-37.09	plf
Deck : RA(d+w)=	-96.51	plf	Deck : RB(d+w)=	-61.40	plf

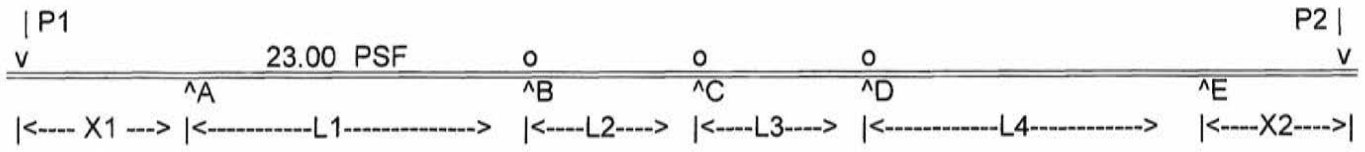
MAd =	-14.80	ft-lbs/ft			
MAs =	-59.05	ft-lbs/ft			
Deck : MAw =	34.99	ft-lbs/ft			
MA(d+s)=	-73.85	ft-lbs/ft	MAB(d+s)=	98.24	ft-lbs/ft
Deck : MA(d+w)=	20.18	ft-lbs/ft	Deck : MAB(d+w)=	-94.94	ft-lbs/ft

USE 20 GAUGE GRADE C DECK
+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi

DECK DESIGN: Deck 1

Wd=	3.00	psf	23.00 psf		
Wl=	20.00	psf	^A		B^
Deck : Ww=	-22.85	psf	|<-------	L	------->|
Frame : Ww=	-14.78	psf			
			Rd=	9.75	plf
L=	6.50	ft	Rl=	65.00	plf
			Frame : Rw=	-48.05	plf
			Deck : Rw=	-74.25	plf
M(d+l)=	121.47	ft-lbs/ft	R(d+l)=	74.75	plf
Deck : M(d+w)=	-104.82	ft-lbs/ft	Frame : R(d+w)=	-38.30	plf
			Deck : R(d+w)=	-64.50	plf

USE 20 GAUGE GRADE C DECK
+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi



Wd=	3.00	psf	X1=	0.75	ft
Wl=	20.00	psf	L1=	4.17	ft
Deck : Ww=	-22.85	psf	L2=	6.50	ft
Frame : Ww=	-14.78	psf	L3=	6.50	ft
P1=	5.83	plf	L4=	7.00	ft
P2=	5.83	plf	X2=	3.04	ft

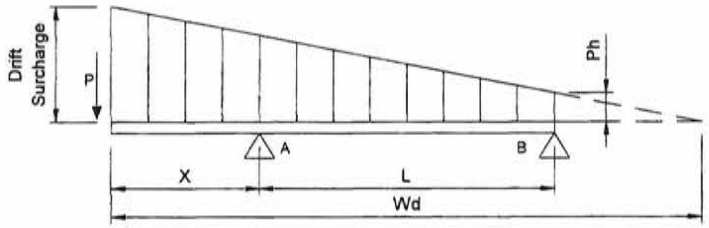
MAd=	5.22	ft-lbs/ft
MAl=	5.63	ft-lbs/ft
Deck : MAw=	-6.43	ft-lbs/ft
MA(d+l)=	10.84	ft-lbs/ft
Deck : MA(d+w)=	-1.21	ft-lbs/ft
MAB(d+l)=	47.34	ft-lbs/ft
Deck : MAB(d+w)=	-42.47	ft-lbs/ft
MBC(d+l)=	121.47	ft-lbs/ft
Deck : MBC(d+w)=	-104.82	ft-lbs/ft
MCD(d+l)=	121.47	ft-lbs/ft
Deck : MCD(d+w)=	-104.82	ft-lbs/ft
MDE(d+l)=	125.51	ft-lbs/ft
Deck : MDE(d+w)=	-87.35	ft-lbs/ft
MEd=	31.62	ft-lbs/ft
MEl=	92.52	ft-lbs/ft
Deck : MEw=	-105.69	ft-lbs/ft
ME(d+l)=	124.14	ft-lbs/ft
Deck : ME(d+w)=	-74.07	ft-lbs/ft

RAd=	15.59	plf
RAl=	58.02	plf
Frame : RAw=	-42.88	plf
RA(d+l)=	73.60	plf
Frame : RA(d+w)=	-27.30	plf
RBd=	14.75	plf
RBl=	106.67	plf
Frame : RBw=	-77.85	plf
RB(d+l)=	121.41	plf
Frame : RB(d+w)=	-63.10	plf
RCd=	19.50	plf
RCl=	130.00	plf
Frame : RCw=	-96.09	plf
RC(d+l)=	149.50	plf
Frame : RC(d+w)=	-76.59	plf
RDd=	15.73	plf
RDl=	135.00	plf
Frame : RDw=	-90.02	plf
RD(d+l)=	150.73	plf
Frame : RD(d+w)=	-74.29	plf
REd=	29.98	plf
REl=	144.05	plf
Frame : REw=	-106.48	plf
RE(d+l)=	174.03	plf
Frame : RE(d+w)=	-76.50	plf

USE 20 GAUGE GRADE C DECK

+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi

Deck Design		Deck 2	
wd=	3.00	psf	
ws=	20.00	psf	
Deck : Ww=	-22.85	psf	
Frame : Ww=	-14.78	psf	
P=	5.83	plf	
(Drift Surcharge)Pm=	20.98	psf	
L=	4.17	ft	
X=	0.75	ft	
Wd=	5.06	ft	
Ph=	0.58	psf	



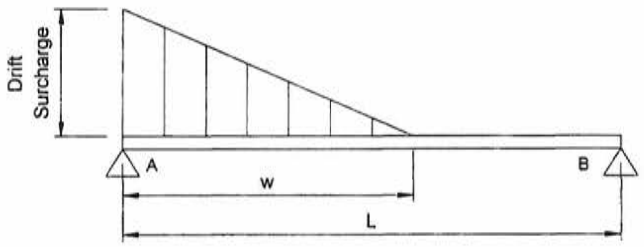
RAd=	15.59	plf	RBd= 5.00 plf
RAs=	99.15	plf	RBs= 52.18 plf
Frame : RAw=	-42.88	plf	Frame : RBw= -29.80 plf
Deck : RAw=	-66.28	plf	Deck : RBw= -46.06 plf
RA(d+s)=	114.74	plf	RB(d+s)= 57.18 plf
Frame : RA(d+w)=	-27.30	plf	Frame : RB(d+w)= -24.80 plf
Deck : RA(d+w)=	-50.69	plf	Deck : RB(d+w)= -41.06 plf

Md(@ OH)=	-5.22	fl-lbs/ft
Ms(@ OH)=	-11.23	fl-lbs/ft
Deck : Mw(@ OH)=	6.43	fl-lbs/ft
MOH(d+s)=	-16.45	fl-lbs/ft
Deck : MOH(d+w)=	1.21	fl-lbs/ft
MSP(d+s)=	61.70	fl-lbs/ft
Deck : MSP(d+w)=	-42.47	fl-lbs/ft

USE 20 GAUGE GRADE C DECK

+S=.3958 in^3 -S=.3195 in^3 FY=40 ksi

Deck Design		Deck 2
wd=	3.00	psf
ws=	20.00	psf
Deck : Ww=	-22.85	psf
Frame : Ww=	-14.78	psf
(Drift Surcharge)Pm=	0.58	psf
L=	6.50	ft
W=	0.14	ft



RAd=	9.75	plf	RBd=	9.75	plf
RAs=	65.04	plf	RBs=	65.00	plf
Frame : RAw=	-48.05	plf	Frame : RBw=	-48.05	plf
Deck : RAw=	-74.25	plf	Deck : RBw=	-74.25	plf
RA(d+s)=	74.79	plf	RB(d+s)=	74.75	plf
Frame : RA(d+w)=	-38.30	plf	Frame : RB(d+w)=	-38.30	plf
Deck : RA(d+w)=	-64.50	plf	Deck : RB(d+w)=	-64.50	plf

MSP(d+s)=	121.41	fl-lbs/ft
Deck : MSP(d+w)=	-104.77	fl-lbs/ft

USE 20 GAUGE GRADE C DECK
+S=.3958 in^3 -S=.3195 in^3 FY=40 ksi

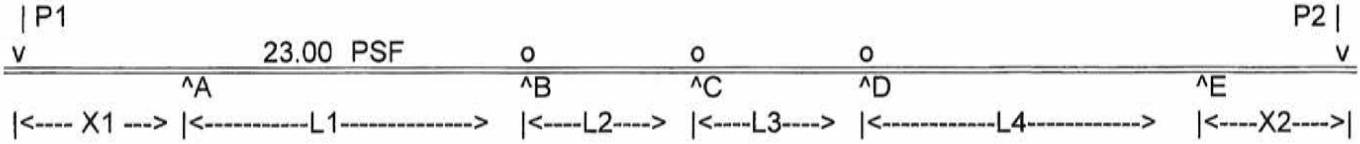
DECK DESIGN:		Deck 2
Wd=	3.00	psf
Wl=	20.00	psf
Deck : Ww=	-22.85	psf
Frame : Ww=	-14.78	psf
L=	6.50	ft
M(d+l)=	121.47	ft-lbs/ft
Deck : M(d+w)=	-104.82	ft-lbs/ft

23.00 psf
^A B^
|<------- L ------->|

Rd=	9.75	plf
Rl=	65.00	plf
Frame : Rw=	-48.05	plf
Deck : Rw=	-74.25	plf
R(d+l)=	74.75	plf
Frame : R(d+w)=	-38.30	plf
Deck : R(d+w)=	-64.50	plf

USE 20 GAUGE GRADE C DECK
+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi

DECK DESIGN: Deck 3



Wd=	3.00	psf	X1=	1.79	ft
Wl=	20.00	psf	L1=	6.50	ft
Deck : Ww=	-22.85	psf	L2=	6.50	ft
Frame : Ww=	-14.78	psf	L3=	6.50	ft
P1=	5.83	plf	L4=	7.00	ft
P2=	5.83	plf	X2=	3.04	ft

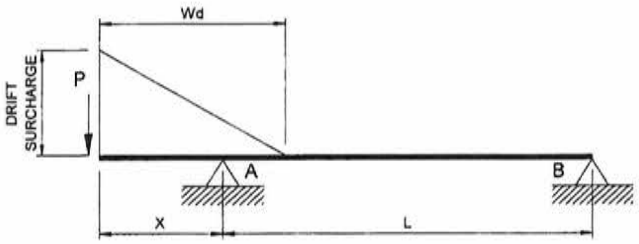
MAd=	15.27	ft-lbs/ft
MAl=	32.10	ft-lbs/ft
Deck : MAw=	-36.67	ft-lbs/ft
MA(d+l)=	47.37	ft-lbs/ft
Deck : MA(d+w)=	-21.40	ft-lbs/ft
MAB(d+l)=	113.96	ft-lbs/ft
Deck : MAB(d+w)=	-94.39	ft-lbs/ft
MBC(d+l)=	121.47	ft-lbs/ft
Deck : MBC(d+w)=	-104.82	ft-lbs/ft
MCD(d+l)=	121.47	ft-lbs/ft
Deck : MCD(d+w)=	-104.82	ft-lbs/ft
MDE(d+l)=	125.51	ft-lbs/ft
Deck : MDE(d+w)=	-87.35	ft-lbs/ft
MEd=	31.62	ft-lbs/ft
MEl=	92.52	ft-lbs/ft
Deck : MEw=	-105.69	ft-lbs/ft
ME(d+l)=	124.14	ft-lbs/ft
Deck : ME(d+w)=	-74.07	ft-lbs/ft

RAd=	23.31	plf
RAl=	105.77	plf
Frame : RAw=	-78.18	plf
RA(d+l)=	129.08	plf
Frame : RA(d+w)=	-54.88	plf
RBd=	17.15	plf
RBl=	130.00	plf
Frame : RBw=	-92.44	plf
RB(d+l)=	147.15	plf
Frame : RB(d+w)=	-75.29	plf
RCd=	19.50	plf
RCl=	130.00	plf
Frame : RCw=	-96.09	plf
RC(d+l)=	149.50	plf
Frame : RC(d+w)=	-76.59	plf
RDd=	15.73	plf
RDl=	135.00	plf
Frame : RDw=	-90.02	plf
RD(d+l)=	150.73	plf
Frame : RD(d+w)=	-74.29	plf
REd=	29.98	plf
REl=	144.05	plf
Frame : REw=	-106.48	plf
RE(d+l)=	174.03	plf
Frame : RE(d+w)=	-76.50	plf

USE 20 GAUGE GRADE C DECK

+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi

wd=	3.00	psf
ws=	20.00	psf
Deck : ww=	-22.85	psf
Frame : ww=	-14.78	psf
P=	5.83	plf
(Drift Surcharge)Pm=	20.98	psf
L=	6.50	ft
X=	1.79	ft
(Drift Length) Wd=	5.06	ft



RAd=	23.31	plf	RBd=	7.40	plf
RAs=	159.68	plf	RBs=	59.19	plf
Frame : RAw=	-78.18	plf	Frame : RBw=	-44.40	plf
Deck : RAw=	-120.83	plf	Deck : RBw=	-68.61	plf
RA(d+s)=	182.98	plf	RB(d+s)=	66.59	plf
Frame : RA(d+w)=	-54.88	plf	Frame : RB(d+w)=	-36.99	plf
Deck : RA(d+w)=	-97.52	plf	Deck : RB(d+w)=	-61.21	plf

MAd =	-15.27	ft-lbs/ft
MAs =	-61.80	ft-lbs/ft
Deck : MAw =	36.67	ft-lbs/ft
MA(d+s)=	-77.06	ft-lbs/ft
Deck : MA(d+w)=	21.40	ft-lbs/ft
MAB(d+s)=	96.41	ft-lbs/ft
Deck : MAB(d+w)=	-94.39	ft-lbs/ft

USE 20 GAUGE GRADE C DECK

+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi

DECK DESIGN: Deck 1

Wd=	3.00	psf
Wl=	20.00	psf
Deck : Ww=	-22.85	psf
Frame : Ww=	-14.78	psf
L=	6.50	ft

23.00 psf

^A B^

|<------- L ------->|

Rd=	9.75	plf
Rl=	65.00	plf
Frame : Rw=	-48.05	plf
Deck : Rw=	-74.25	plf
M(d+l)=	121.47	ft-lbs/ft
Deck : M(d+w)=	-104.82	ft-lbs/ft
R(d+l)=	74.75	plf
Frame : R(d+w)=	-38.30	plf
Deck : R(d+w)=	-64.50	plf

USE 20 GAUGE GRADE C DECK

+S=.3961 in^3 -S=.3036 in^3 FY=40 ksi

BEAM DESIGN: P-a

Wd=	36.11	plf				| P		
Wl=	158.28	plf				v	194.39	plf
Ww=	-77.40	plf					^A	B^
Pd=	30.54	lbs				|<-----X---->	|<----------	L ---------->|
Pl=	0.00	lbs						
Pw=	0.00	lbs		Deflections: (inches)		Overhang	Midspan	
L=	12.00	ft		DL=		-0.006	0.013	
X=	2.00	ft		DL+LL=		-0.036	0.073	
				(+downward, -upward)				
MA(d) =	133	ft-lbs				RAd=	331	lbs
MA(l) =	317	ft-lbs				RAl=	1293	lbs
MA(w) =	-155	ft-lbs				RAw=	-632	lbs
MA(d+l) =	450	ft-lbs	lu=	1.33	ft	RA(d+l)=	1623	lbs
MA(d+w) =	-21	ft-lbs	lu=	2.00	ft	RA(d+w)=	-302	lbs
						RBd=	206	lbs
						RBl(Max)=	950	lbs
						RBw=	-452	lbs
MAB(d+l)=	3433	ft-lbs	lu=	6.00	ft	RB(d+l)=	1155	lbs
MAB(d+w)=	-733	ft-lbs	lu=	1.33	ft	RB(d+w)=	-246	lbs

USE: W8X13 Fy = 50 ksi

BEAM DESIGN: P-b

Wd=	27.22	plf				| P		
Wl=	130.00	plf				v	157.22	plf
Ww=	-92.61	plf					^A	B^
Pd=	36.54	lbs				|<-----X---->	|<----------	L ---------->|
Pl=	0.00	lbs						
Pw=	0.00	lbs		Deflections: (inches)		Overhang	Midspan	
L=	12.00	ft		DL=		-0.005	0.012	
X=	2.00	ft		DL+LL=		-0.037	0.075	
				(+downward, -upward)				
MA(d) =	128	ft-lbs				RAd=	265	lbs
MA(l) =	260	ft-lbs				RAl=	1062	lbs
MA(w) =	-185	ft-lbs				RAw=	-756	lbs
MA(d+l) =	388	ft-lbs	lu=	1.33	ft	RA(d+l)=	1327	lbs
MA(d+w) =	-58	ft-lbs	lu=	2.00	ft	RA(d+w)=	-491	lbs
						RBd=	153	lbs
						RBl(Max)=	780	lbs
						RBw=	-540	lbs
MAB(d+l)=	2767	ft-lbs	lu=	6.00	ft	RB(d+l)=	933	lbs
MAB(d+w)=	-1148	ft-lbs	lu=	1.33	ft	RB(d+w)=	-388	lbs

USE: W8X10 Fy = 50 ksi

BEAM DESIGN: P-c

Wd=	29.50	plf					
Wl=	130.00	plf					
Ww=	-96.09	plf					
Pd=	37.92	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	12.00	ft					
X=	2.00	ft					
MA(d) =	135	ft-lbs					
MA(l) =	260	ft-lbs					
MA(w) =	-192	ft-lbs					
MA(d+l) =	395	ft-lbs	lu=	1.33	ft		
MA(d+w) =	-57	ft-lbs	lu=	2.00	ft		
MAB(d+l)=	2804	ft-lbs	lu=	6.00	ft		
MAB(d+w)=	-1170	ft-lbs	lu=	1.33	ft		

| P			
v	159.50	plf	
	^A		B^
|<-----X---->	|<----------	L ---------->	|

Deflections: (inches)	Overhang	Midspan
DL=	-0.006	0.013
DL+LL=	-0.038	0.076
(+downward, -upward)		

RAd=	285	lbs	
RAl=	1062	lbs	
RAw=	-785	lbs	
RA(d+l)=	1347	lbs	
RA(d+w)=	-500	lbs	
RBd=	166	lbs	
RBl(Max)=	780	lbs	
RBw=	-561	lbs	
RB(d+l)=	946	lbs	
RB(d+w)=	-395	lbs	

USE: W8X10 Fy = 50 ksi

BEAM DESIGN: P-d

Wd=	25.73	plf					
Wl=	135.00	plf					
Ww=	-90.02	plf					
Pd=	35.52	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	12.00	ft					
X=	2.00	ft					
MA(d) =	123	ft-lbs					
MA(l) =	270	ft-lbs					
MA(w) =	-180	ft-lbs					
MA(d+l) =	393	ft-lbs	lu=	1.33	ft		
MA(d+w) =	-58	ft-lbs	lu=	2.00	ft		
MAB(d+l)=	2832	ft-lbs	lu=	6.00	ft		
MAB(d+w)=	-1129	ft-lbs	lu=	1.33	ft		

| P			
v	160.73	plf	
	^A		B^
|<-----X---->	|<----------	L ---------->	|

Deflections: (inches)	Overhang	Midspan
DL=	-0.005	0.011
DL+LL=	-0.038	0.077
(+downward, -upward)		

RAd=	252	lbs	
RAl=	1103	lbs	
RAw=	-735	lbs	
RA(d+l)=	1354	lbs	
RA(d+w)=	-484	lbs	
RBd=	144	lbs	
RBl(Max)=	810	lbs	
RBw=	-525	lbs	
RB(d+l)=	954	lbs	
RB(d+w)=	-381	lbs	

USE: W8X10 Fy = 50 ksi

BEAM DESIGN: P-e

Wd=	39.98	plf					
Wl=	144.05	plf					
Ww=	-106.48	plf					
Pd=	42.01	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	12.00	ft					
X=	2.00	ft					
MA(d) =	164	ft-lbs					
MA(l) =	288	ft-lbs					
MA(w) =	-213	ft-lbs					
MA(d+l) =	452	ft-lbs	lu=				
MA(d+w) =	-49	ft-lbs	lu=				
MAB(d+l)=	3231	ft-lbs	lu=				
MAB(d+w)=	-1173	ft-lbs	lu=				

| P			
v	184.03 plf		
	^A		B^
|<-----X---->	|<----------	L ----------> |	

Deflections: (inches)	Overhang	Midspan
DL=	-0.008	0.018
DL+LL=	-0.043	0.088
(+downward, -upward)		

RAd=	375	lbs	
RAl=	1176	lbs	
RAw=	-870	lbs	
RA(d+l)=	1552	lbs	
RA(d+w)=	-494	lbs	
RBd=	226	lbs	
RBl(Max)=	864	lbs	
RBw=	-621	lbs	
RB(d+l)=	1090	lbs	
RB(d+w)=	-395	lbs	

	1.33	ft			
	2.00	ft			
	6.00	ft			
	1.33	ft			

USE: W8X10 Fy = 50 ksi

BEAM DESIGN: P-f

Wd=	36.11	plf					
Wl=	158.28	plf					
Ww=	-77.40	plf					
Pd=	19.44	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	11.42	ft					
X=	0.96	ft					
MA(d) =	35	ft-lbs					
MA(l) =	73	ft-lbs					
MA(w) =	-36	ft-lbs					
MA(d+l) =	108	ft-lbs	lu=				
MA(d+w) =	-0	ft-lbs	lu=				
MAB(d+l)=	3149	ft-lbs	lu=				
MAB(d+w)=	-673	ft-lbs	lu=				

| P			
v	194.39 plf		
	^A		B^
|<-----X---->	|<----------	L ----------> |	

Deflections: (inches)	Overhang	Midspan
DL=	-0.003	0.012
DL+LL=	-0.017	0.063
(+downward, -upward)		

RAd=	263	lbs	
RAl=	1062	lbs	
RAw=	-519	lbs	
RA(d+l)=	1325	lbs	
RA(d+w)=	-256	lbs	
RBd=	203	lbs	
RBl(Max)=	903	lbs	
RBw=	-439	lbs	
RB(d+l)=	1107	lbs	
RB(d+w)=	-236	lbs	

	1.33	ft			
	0.96	ft			
	11.42	ft			
	1.33	ft			

USE: W8X13 Fy = 50 ksi

BEAM DESIGN: P-g

Wd=	27.22	plf			
Wl=	130.00	plf			
Ww=	-92.61	plf			
L=	11.42	ft			
	157.22	plf			
	|<---------- L --------->|		Rd=	155	lbs
			Rl=	742	lbs
Md=	443.5	ft-lbs	Rw=	-529	lbs
Ml=	2118.0	ft-lbs	R(d+l)=	897	lbs
Mw=	-1508.9	ft-lbs	R(d+w)=	-373	lbs
M(d+l)=	2561.6	ft-lbs	Lu=	11.42	ft OK
M(d+w)=	-1065.3	ft-lbs	Lu=	1.33	ft OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.012
DL+LL=	0.067

(+downward, -upward)

BEAM DESIGN: P-h

Wd=	29.50	plf			
Wl=	130.00	plf			
Ww=	-96.09	plf			
L=	11.42	ft			
	159.50	plf			
	|<---------- L --------->|		Rd=	168	lbs
			Rl=	742	lbs
Md=	480.6	ft-lbs	Rw=	-549	lbs
Ml=	2118.0	ft-lbs	R(d+l)=	910	lbs
Mw=	-1565.6	ft-lbs	R(d+w)=	-380	lbs
M(d+l)=	2598.7	ft-lbs	Lu=	11.42	ft OK
M(d+w)=	-1085.0	ft-lbs	Lu=	1.33	ft OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.013
DL+LL=	0.068

(+downward, -upward)

BEAM DESIGN: P-i

Wd=	25.73	plf				
Wl=	135.00	plf				
Ww=	-90.02	plf				
L=	11.42	ft				
	160.73	plf				
	|<---------- L --------->|		Rd=	147	lbs	
			Rl=	771	lbs	
Md=	419.3	ft-lbs	Rw=	-514	lbs	
Ml=	2199.5	ft-lbs	R(d+l)=	918	lbs	
Mw=	-1466.6	ft-lbs	R(d+w)=	-367	lbs	
M(d+l)=	2618.7	ft-lbs	Lu=	11.42	ft	OK
M(d+w)=	-1047.4	ft-lbs	Lu=	1.33	ft	OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.011
DL+LL=	0.069

(+downward, -upward)

BEAM DESIGN: P-j

Wd=	39.98	plf				
Wl=	144.05	plf				
Ww=	-106.48	plf				
L=	11.42	ft				
	184.03	plf				
	|<---------- L --------->|		Rd=	228	lbs	
			Rl=	822	lbs	
Md=	651.3	ft-lbs	Rw=	-608	lbs	
Ml=	2346.9	ft-lbs	R(d+l)=	1050	lbs	
Mw=	-1734.8	ft-lbs	R(d+w)=	-380	lbs	
M(d+l)=	2998.2	ft-lbs	Lu=	11.42	ft	OK
M(d+w)=	-1083.5	ft-lbs	Lu=	1.33	ft	OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.017
DL+LL=	0.079

(+downward, -upward)

BEAM DESIGN: P-k

Wd=	33.59	plf			
Wl=	99.15	plf			
Ww=	-42.88	plf			
L=	23.35	ft			
	132.74	plf			
	|<---------- L --------->|		Rd=	392	lbs
			Rl=	1158	lbs
Md=	2289.8	ft-lbs	Rw=	-501	lbs
Ml=	6759.7	ft-lbs	R(d+l)=	1550	lbs
Mw=	-2923.8	ft-lbs	R(d+w)=	-109	lbs
M(d+l)=	9049.5	ft-lbs	Lu=	7.78	ft OK
M(d+w)=	-634.0	ft-lbs	Lu=	1.33	ft OK

USE: W8X18 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.125
DL+LL=	0.495

(+downward, -upward)

BEAM DESIGN: P-l

Wd=	32.75	plf			
Wl=	117.22	plf			
Ww=	-77.85	plf			
L=	23.35	ft			
	149.97	plf			
	|<---------- L --------->|		Rd=	382	lbs
			Rl=	1369	lbs
Md=	2232.6	ft-lbs	Rw=	-909	lbs
Ml=	7991.7	ft-lbs	R(d+l)=	1751	lbs
Mw=	-5307.5	ft-lbs	R(d+w)=	-527	lbs
M(d+l)=	10224.4	ft-lbs	Lu=	7.78	ft OK
M(d+w)=	-3074.8	ft-lbs	Lu=	1.33	ft OK

USE: W8X18 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.122
DL+LL=	0.559

(+downward, -upward)

BEAM DESIGN: P-m

Wd=	37.50	plf			
Wl=	130.00	plf			
Ww=	-96.09	plf			
L=	23.35	ft			
	167.50	plf			
	|<---------- L --------->|		Rd=	438	lbs
			Rl=	1518	lbs
Md=	2556.6	ft-lbs	Rw=	-1122	lbs
Ml=	8863.0	ft-lbs	R(d+l)=	1956	lbs
Mw=	-6551.4	ft-lbs	R(d+w)=	-684	lbs
M(d+l)=	11419.7	ft-lbs	Lu=	7.78	ft OK
M(d+w)=	-3994.7	ft-lbs	Lu=	1.33	ft OK

USE: W8X18 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.140
DL+LL=	0.625

(+downward, -upward)

BEAM DESIGN: P-n

Wd=	33.73	plf			
Wl=	135.00	plf			
Ww=	-90.02	plf			
L=	23.35	ft			
	168.73	plf			
	|<---------- L --------->|		Rd=	394	lbs
			Rl=	1576	lbs
Md=	2299.8	ft-lbs	Rw=	-1051	lbs
Ml=	9203.9	ft-lbs	R(d+l)=	1970	lbs
Mw=	-6137.3	ft-lbs	R(d+w)=	-657	lbs
M(d+l)=	11503.7	ft-lbs	Lu=	7.78	ft OK
M(d+w)=	-3837.5	ft-lbs	Lu=	1.33	ft OK

USE: W8X18 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.126
DL+LL=	0.629

(+downward, -upward)

BEAM DESIGN: P-o

Wd=	47.98	plf			
Wl=	144.05	plf			
Ww=	-106.48	plf			
L=	23.35	ft			
	192.03	plf			
	^	^			
	|<----------	L --------->|	Rd=	560	lbs
			Rl=	1682	lbs
Md=	3270.8	ft-lbs	Rw=	-1243	lbs
Ml=	9820.9	ft-lbs	R(d+l)=	2242	lbs
Mw=	-7259.4	ft-lbs	R(d+w)=	-683	lbs
M(d+l)=	13091.8	ft-lbs	Lu=	7.78	ft OK
M(d+w)=	-3988.6	ft-lbs	Lu=	1.33	ft OK

USE: W8X18 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.179
DL+LL=	0.716

(+downward, -upward)

BEAM DESIGN: P-p

Wd=	36.31	plf			| P		
Wl=	159.68	plf			v	195.98	plf
Ww=	-78.18	plf				^A	B^
Pd=	19.69	lbs			|<-----X---->	|<----------	L ---------->|
Pl=	0.00	lbs					
Pw=	0.00	lbs	Deflections: (inches)		Overhang	Midspan	
L=	12.75	ft	DL=		-0.005	0.018	
X=	1.13	ft	DL+LL=		-0.028	0.099	
			(+downward, -upward)				
MA(d) =	45	ft-lbs			RAd=	296	lbs
MA(l) =	101	ft-lbs			RAl=	1206	lbs
MA(w) =	-49	ft-lbs			RAw=	-590	lbs
MA(d+l) =	146	ft-lbs lu=	1.33	ft	RA(d+l)=	1501	lbs
MA(d+w) =	-4	ft-lbs lu=	1.13	ft	RA(d+w)=	-295	lbs
					RBd=	228	lbs
					RBl(Max)=	1018	lbs
					RBw=	-495	lbs
MAB(d+l)=	3960	ft-lbs lu=	6.38	ft	RB(d+l)=	1246	lbs
MAB(d+w)=	-849	ft-lbs lu=	1.33	ft	RB(d+w)=	-267	lbs

USE: W8X13 Fy = 50 ksi

BEAM DESIGN: P-q

Wd=	27.15	plf			
Wl=	130.00	plf			
Ww=	-92.44	plf			
L=	12.75	ft			
	157.15	plf			
	|<---------- L --------->|		Rd=	173	lbs
			Rl=	829	lbs
Md=	551.7	ft-lbs	Rw=	-589	lbs
Ml=	2641.6	ft-lbs	R(d+l)=	1002	lbs
Mw=	-1878.5	ft-lbs	R(d+w)=	-416	lbs
M(d+l)=	3193.4	ft-lbs	Lu=	6.38	ft OK
M(d+w)=	-1326.7	ft-lbs	Lu=	1.33	ft OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.018
DL+LL=	0.105

(+downward, -upward)

BEAM DESIGN: P-r

Wd=	29.50	plf			
Wl=	130.00	plf			
Ww=	-96.09	plf			
L=	12.75	ft			
	159.50	plf			
	|<---------- L --------->|		Rd=	188	lbs
			Rl=	829	lbs
Md=	599.4	ft-lbs	Rw=	-613	lbs
Ml=	2641.6	ft-lbs	R(d+l)=	1017	lbs
Mw=	-1952.6	ft-lbs	R(d+w)=	-425	lbs
M(d+l)=	3241.1	ft-lbs	Lu=	6.38	ft OK
M(d+w)=	-1353.2	ft-lbs	Lu=	1.33	ft OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.020
DL+LL=	0.106

(+downward, -upward)

BEAM DESIGN: P-s

Wd=	25.73	plf				
Wl=	135.00	plf				
Ww=	-90.02	plf				
L=	12.75	ft				
	160.73	plf				
		<---------- L --------->		Rd=	164	lbs	
				Rl=	861	lbs	
Md=	522.9	ft-lbs		Rw=	-574	lbs	
Ml=	2743.2	ft-lbs		R(d+l)=	1025	lbs	
Mw=	-1829.2	ft-lbs		R(d+w)=	-410	lbs	
M(d+l)=	3266.1	ft-lbs		Lu=	6.38	ft	OK
M(d+w)=	-1306.3	ft-lbs		Lu=	1.33	ft	OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.017
DL+LL=	0.107

(+downward, -upward)

BEAM DESIGN: P-t

Wd=	39.98	plf				
Wl=	144.05	plf				
Ww=	-106.48	plf				
L=	12.75	ft				
	184.03	plf				
		<---------- L --------->		Rd=	255	lbs	
				Rl=	918	lbs	
Md=	812.3	ft-lbs		Rw=	-679	lbs	
Ml=	2927.1	ft-lbs		R(d+l)=	1173	lbs	
Mw=	-2163.7	ft-lbs		R(d+w)=	-424	lbs	
M(d+l)=	3739.5	ft-lbs		Lu=	6.38	ft	OK
M(d+w)=	-1351.4	ft-lbs		Lu=	1.33	ft	OK

USE: W8X10 Fy = 50 ksi

Deflections: (inches)	Midspan
DL=	0.027
DL+LL=	0.123

(+downward, -upward)

BEAM DESIGN: P-u

Wd=	36.31	plf					
Wl=	159.68	plf					
Ww=	-78.18	plf					
Pd=	30.85	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	13.50	ft					
X=	1.35	ft					
MA(d) =	75	ft-lbs					
MA(l) =	146	ft-lbs					
MA(w) =	-72	ft-lbs					
MA(d+l) =	221	ft-lbs	lu=	1.33	ft		
MA(d+w) =	3	ft-lbs	lu=	1.35	ft		
MAB(d+l)=	4427	ft-lbs	lu=	6.75	ft		
MAB(d+w)=	-956	ft-lbs	lu=	1.33	ft		

		Overhang	Midspan
Deflections: (inches)			
	DL=	-0.007	0.022
	DL+LL=	-0.039	0.124
(+downward, -upward)			

RAd=	331	lbs	
RAl=	1305	lbs	
RAw=	-639	lbs	
RA(d+l)=	1636	lbs	
RA(d+w)=	-308	lbs	
RBd=	240	lbs	
RBl(Max)=	1078	lbs	
RBw=	-522	lbs	
RB(d+l)=	1317	lbs	
RB(d+w)=	-283	lbs	

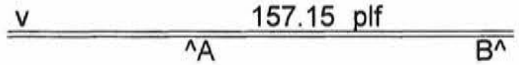
USE: W8X13 Fy = 50 ksi

BEAM DESIGN: P-v

Wd=	27.15	plf					
Wl=	130.00	plf					
Ww=	-92.44	plf					
Pd=	36.48	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	13.50	ft					
X=	1.35	ft					
MA(d) =	74	ft-lbs					
MA(l) =	119	ft-lbs					
MA(w) =	-85	ft-lbs					
MA(d+l) =	193	ft-lbs	lu=	1.33	ft		
MA(d+w) =	-10	ft-lbs	lu=	1.35	ft		
MAB(d+l)=	3543	ft-lbs	lu=	6.75	ft		
MAB(d+w)=	-1482	ft-lbs	lu=	1.33	ft		

		Overhang	Midspan
Deflections: (inches)			
	DL=	-0.006	0.021
	DL+LL=	-0.040	0.127
(+downward, -upward)			

RAd=	262	lbs	
RAl=	1062	lbs	
RAw=	-755	lbs	
RA(d+l)=	1324	lbs	
RA(d+w)=	-493	lbs	
RBd=	178	lbs	
RBl(Max)=	878	lbs	
RBw=	-618	lbs	
RB(d+l)=	1055	lbs	
RB(d+w)=	-440	lbs	



USE: W8X10 Fy = 50 ksi

BEAM DESIGN: P-w

Wd=	29.50	plf					
Wl=	130.00	plf					
Ww=	-96.09	plf					
Pd=	37.92	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	13.50	ft					
X=	1.35	ft					
MA(d) =	78	ft-lbs					
MA(l) =	119	ft-lbs					
MA(w) =	-88	ft-lbs					
MA(d+l) =	198	ft-lbs	lu=	1.33	ft		
MA(d+w) =	-10	ft-lbs	lu=	1.35	ft		
MAB(d+l)=	3595	ft-lbs	lu=	6.75	ft		
MAB(d+w)=	-1512	ft-lbs	lu=	1.33	ft		

	P		
	v	159.50	plf
		^A	B^
	|<-----X---->	|<----------	L ----------> |

Deflections: (inches)	Overhang	Midspan
DL=	-0.007	0.023
DL+LL=	-0.040	0.129
(+downward, -upward)		

RAd=	283	lbs
RAl=	1062	lbs
RAw=	-785	lbs
RA(d+l)=	1345	lbs
RA(d+w)=	-502	lbs
RBd=	193	lbs
RBl(Max)=	878	lbs
RBw=	-642	lbs
RB(d+l)=	1071	lbs
RB(d+w)=	-449	lbs

USE: W8X10 Fy = 50 ksi

BEAM DESIGN: P-x

Wd=	25.73	plf					
Wl=	135.00	plf					
Ww=	-90.02	plf					
Pd=	35.52	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	13.50	ft					
X=	1.35	ft					
MA(d) =	72	ft-lbs					
MA(l) =	124	ft-lbs					
MA(w) =	-83	ft-lbs					
MA(d+l) =	195	ft-lbs	lu=	1.33	ft		
MA(d+w) =	-11	ft-lbs	lu=	1.35	ft		
MAB(d+l)=	3626	ft-lbs	lu=	6.75	ft		
MAB(d+w)=	-1459	ft-lbs	lu=	1.33	ft		

	P		
	v	160.73	plf
		^A	B^
	|<-----X---->	|<----------	L ----------> |

Deflections: (inches)	Overhang	Midspan
DL=	-0.006	0.020
DL+LL=	-0.041	0.130
(+downward, -upward)		

RAd=	249	lbs
RAl=	1103	lbs
RAw=	-736	lbs
RA(d+l)=	1353	lbs
RA(d+w)=	-486	lbs
RBd=	168	lbs
RBl(Max)=	911	lbs
RBw=	-602	lbs
RB(d+l)=	1080	lbs
RB(d+w)=	-433	lbs

USE: W8X10 Fy = 50 ksi

BEAM DESIGN: P-y

Wd=	39.98	plf					
Wl=	144.05	plf					
Ww=	-106.48	plf					
Pd=	174.86	lbs					
Pl=	0.00	lbs					
Pw=	0.00	lbs					
L=	13.50	ft					
X=	1.35	ft					
MA(d) =	273	ft-lbs					
MA(l) =	132	ft-lbs					
MA(w) =	-98	ft-lbs					
MA(d+l) =	406	ft-lbs	lu=	1.33	ft		
MA(d+w) =	176	ft-lbs	lu=	1.35	ft		
MAB(d+l)=	4057	ft-lbs	lu=	6.75	ft		
MAB(d+w)=	-1604	ft-lbs	lu=	1.33	ft		

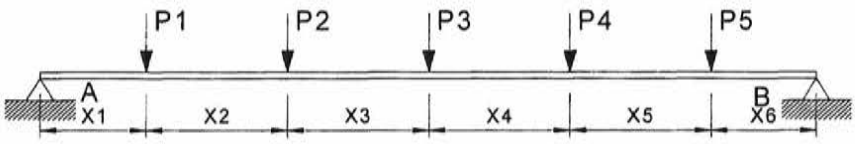
	| P		
	v	184.03	plf
		^A	B^
	|<-----X---->	|<----------	L ----------\>|

Deflections: (inches)	Overhang	Midspan
DL=	-0.007	0.027
DL+LL=	-0.044	0.145
(+downward, -upward)		

RAd=	519	lbs	
RAl=	1177	lbs	
RAw=	-870	lbs	
RA(d+l)=	1696	lbs	
RA(d+w)=	-351	lbs	
RBd=	250	lbs	
RBl(Max)=	972	lbs	
RBw=	-712	lbs	
RB(d+l)=	1222	lbs	
RB(d+w)=	-462	lbs	

USE: W8X10 Fy = 50 ksi

P1d=	331	lbs
P1l=	1293	lbs
P1w=	-632	lbs
P2d=	265	lbs
P2l=	1062	lbs
P2w=	-756	lbs
P3d=	285	lbs
P3l=	1062	lbs
P3w=	-785	lbs
P4d=	252	lbs
P4l=	1103	lbs
P4w=	-735	lbs
P5d=	375	lbs
P5l=	1176	lbs
P5w=	-870	lbs



X1 =	1.08	ft
X2 =	6.50	ft
X3 =	6.50	ft
X4 =	6.50	ft
X5 =	7.00	ft
X6 =	1.25	ft
L =	28.83	ft

Wd=	40.00	plf
Wl=	0.00	plf
Ww=	0.00	plf

RA(d)=	1324	lbs
RA(l)=	2936	lbs
RA(w)=	-1815	lbs
RA(d+l)=	4260	lbs
RA(d+w)=	-491	lbs

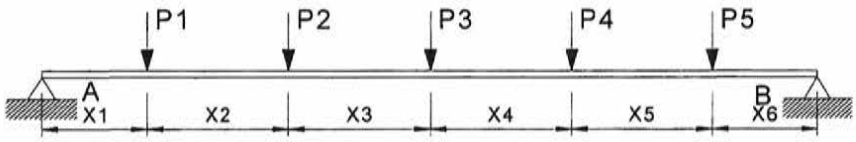
Deflection		
dl=	0.30	in
dl+ll=	0.90	in

RB(d)=	1337	lbs
RB(l)=	2759	lbs
RB(w)=	-1963	lbs
RB(d+l)=	4096	lbs
RB(d+w)=	-626	lbs

Mspan(d+l) =	26307.6	ft-lbs	lu=	7.00 ft
Mspan(d+w) =	-3768.4	ft-lbs	lu=	7.00 ft

USE: W8X40 Fy = 50 ksi

P1d=	409	lbs
P1l=	1853	lbs
P1w=	-890	lbs
P2d=	308	lbs
P2l=	1522	lbs
P2w=	-1069	lbs
P3d=	334	lbs
P3l=	1522	lbs
P3w=	-1109	lbs
P4d=	291	lbs
P4l=	1581	lbs
P4w=	-1039	lbs
P5d=	454	lbs
P5l=	1687	lbs
P5w=	-1229	lbs



X1 =	1.08	ft
X2 =	6.50	ft
X3 =	6.50	ft
X4 =	6.50	ft
X5 =	7.00	ft
X6 =	1.25	ft
L =	28.83	ft

Wd=	58.00	plf
Wl=	0.00	plf
Ww=	0.00	plf

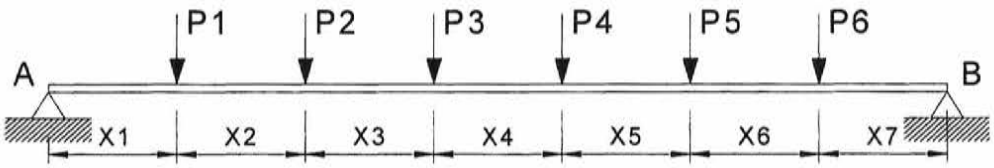
RA(d)=	1730	lbs
RA(l)=	4209	lbs
RA(w)=	-2562	lbs
RA(d+l)=	5940	lbs
RA(d+w)=	-832	lbs

RB(d)=	1738	lbs
RB(l)=	3955	lbs
RB(w)=	-2774	lbs
RB(d+l)=	5693	lbs
RB(d+w)=	-1035	lbs

Deflection		
dl=	0.25	in
dl+ll=	0.80	in

Mspan(d+l) =	36600.2	ft-lbs	lu=	7.00 ft
Mspan(d+w) =	-6263.6	ft-lbs	lu=	7.00 ft

USE: W8X58 Fy = 50 ksi

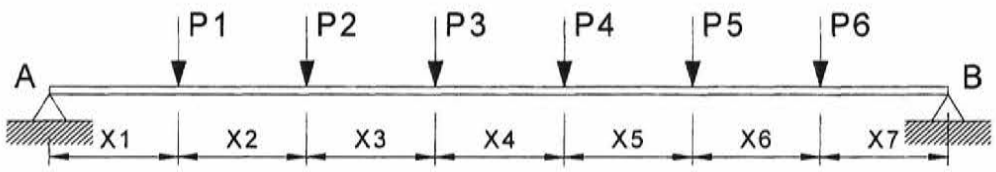


P1d=	263	lbs			
P1l=	1062	lbs			
P1w=	-519	lbs			
P2d=	392	lbs			
P2l=	1158	lbs	Wd =	54.00	plf
P2w=	-501	lbs	Wl =	0.00	plf
P3d=	538	lbs	Ww =	0.00	plf
P3l=	2111	lbs			
P3w=	-1438	lbs	X1=	1.08	ft
P4d=	606	lbs	X2=	2.33	ft
P4l=	2260	lbs	X3=	4.17	ft
P4w=	-1671	lbs	X4=	6.50	ft
P5d=	541	lbs	X5=	6.50	ft
P5l=	2347	lbs	X6=	7.00	ft
P5w=	-1565	lbs	X7=	1.25	ft
P6d=	788	lbs	L =	28.83	ft
P6l=	2504	lbs			
P6w=	-1851	lbs			

RA(d)=	2273	lbs	RB(d)=	2413	lbs
RA(l)=	5534	lbs	RB(l)=	5907	lbs
RA(w)=	-3383	lbs	RB(w)=	-4161	lbs
RA(d+l)=	7807	lbs	RB(d+l)=	8320	lbs
RA(d+w)=	-1110	lbs	RB(d+w)=	-1748	lbs

Mspan(d+l) =	53625.1	ft-lbs	Lu=	7.00	ft
Mspan(d+w) =	-10658.1	ft-lbs	Lu=	7.00	ft
			DL Defl. =	0.26	in.
			DL+LL Defl. =	0.89	in.

USE: W10X54 Fy = 50 ksi



P1d=	296	lbs			
P1l=	1206	lbs			
P1w=	-590	lbs			
P2d=	392	lbs			
P2l=	1158	lbs	Wd =	54.00	plf
P2w=	-501	lbs	Wl =	0.00	plf
P3d=	555	lbs	Ww =	0.00	plf
P3l=	2198	lbs			
P3w=	-1498	lbs	X1=	1.08	ft
P4d=	626	lbs	X2=	2.33	ft
P4l=	2347	lbs	X3=	4.17	ft
P4w=	-1735	lbs	X4=	6.50	ft
P5d=	558	lbs	X5=	6.50	ft
P5l=	2437	lbs	X6=	7.00	ft
P5w=	-1625	lbs	X7=	1.25	ft
P6d=	815	lbs	L =	28.83	ft
P6l=	2600	lbs			
P6w=	-1922	lbs			

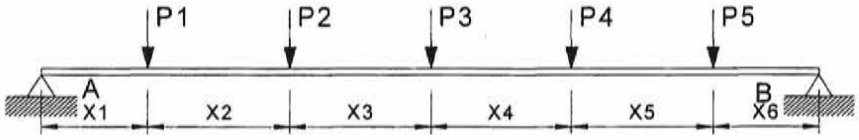
RA(d)=	2333	lbs	RB(d)=	2466	lbs
RA(l)=	5811	lbs	RB(l)=	6134	lbs
RA(w)=	-3549	lbs	RB(w)=	-4322	lbs
RA(d+l)=	8144	lbs	RB(d+l)=	8600	lbs
RA(d+w)=	-1216	lbs	RB(d+w)=	-1856	lbs

Mspan(d+l) =	55400.4	ft-lbs	Lu=	7.00	ft
Mspan(d+w) =	-11366.0	ft-lbs	Lu=	7.00	ft

DL Defl. =	0.26	in.
DL+LL Defl. =	0.92	in.

USE: W10X54 Fy = 50 ksi

P1d=	467	lbs
P1l=	2096	lbs
P1w=	-1017	lbs
P2d=	351	lbs
P2l=	1706	lbs
P2w=	-1207	lbs
P3d=	381	lbs
P3l=	1706	lbs
P3w=	-1255	lbs
P4d=	332	lbs
P4l=	1772	lbs
P4w=	-1175	lbs
P5d=	504	lbs
P5l=	1891	lbs
P5w=	-1390	lbs



X1 =	1.08	ft
X2 =	6.50	ft
X3 =	6.50	ft
X4 =	6.50	ft
X5 =	7.00	ft
X6 =	1.25	ft
L =	28.83	ft

Wd=	58.00	plf
Wl=	0.00	plf
Ww=	0.00	plf

RA(d)=	1857	lbs
RA(l)=	4736	lbs
RA(w)=	-2907	lbs
RA(d+l)=	6593	lbs
RA(d+w)=	-1050	lbs

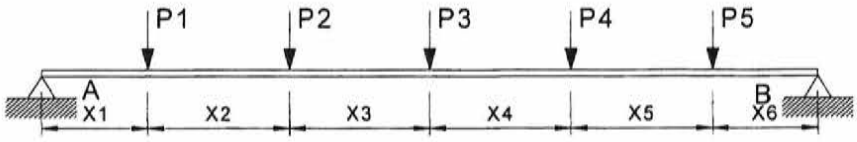
Deflection		
dl=	0.27	in
dl+ll=	0.89	in

RB(d)=	1852	lbs
RB(l)=	4434	lbs
RB(w)=	-3138	lbs
RB(d+l)=	6287	lbs
RB(d+w)=	-1285	lbs

Mspan(d+l) =	40407.0	ft-lbs	lu=	7.00 ft
Mspan(d+w) =	-7831.3	ft-lbs	lu=	7.00 ft

USE: W8X58 Fy = 50 ksi

P1d=	331	lbs
P1l=	1305	lbs
P1w=	-639	lbs
P2d=	262	lbs
P2l=	1062	lbs
P2w=	-755	lbs
P3d=	283	lbs
P3l=	1062	lbs
P3w=	-785	lbs
P4d=	249	lbs
P4l=	1103	lbs
P4w=	-736	lbs
P5d=	519	lbs
P5l=	1177	lbs
P5w=	-870	lbs



X1 =	1.08	ft
X2 =	6.50	ft
X3 =	6.50	ft
X4 =	6.50	ft
X5 =	7.00	ft
X6 =	1.25	ft
L =	28.83	ft

Wd=	40.00	plf
Wl=	0.00	plf
Ww=	0.00	plf

RA(d)=	1327	lbs
RA(l)=	2949	lbs
RA(w)=	-1822	lbs
RA(d+l)=	4276	lbs
RA(d+w)=	-495	lbs

Deflection		
dl=	0.30	in
dl+ll=	0.91	in

RB(d)=	1471	lbs
RB(l)=	2761	lbs
RB(w)=	-1964	lbs
RB(d+l)=	4232	lbs
RB(d+w)=	-493	lbs

Mspan(d+l) =	26376.1	ft-lbs	lu=	7.00 ft
Mspan(d+w) =	-3724.5	ft-lbs	lu=	7.00 ft

USE: W8X40 Fy = 50 ksi

P DL =	2.47	kips	Clr. Ht.=	10.17	ft
P LL =	6.13	kips	Fascia Ht.=	1.00	ft
P WL =	-4.32	kips	Col. Trib=	18.05	ft
Base Shear =	0.20	kips	Wind Load=	16.00	psf
Total Base Shear =	1.89	kips	# of COL.=	2	
M WL =	w(Fascia Ht•2.5•Col Trib./# of col•L)+ w(Wrap•1/2 Clr. Ht^2)		Max All. Defl =	1.28	in
M Seis =	Base Shear x L		Max Defl Ratio =	L/ 100	
M Unbal =	Live Load x Col. Trib.x (Canopy Width/2)^2/2		Max Defl. =	0.15	in, OK
L =	Clr. Ht. + Fascia Ht/2				
Pr =	8.60	kips 1.6Pr<0.5Py First-Order Analysis Allowed (A-7-1)			
Py =	326.60	kips			
N =	0.00	•Yi (A-7-2)			
B2 =	1.05	OK, A-8-6			
M WL =	4.68	kip-ft			
M Seis =	2.18	kip-ft			
M DL(Nod) =	0.11	kip-ft			
M LL(Nod) =	0.27	kip-ft			
M Unbal DL=	0.00	kip-ft			
M Unbal LL=	0.00	kip-ft			
M Unbal WL=	0.00	kip-ft			

Use:	TS8X8X1/4	
Fy =	46.00	ksi
K =	1.00	
L, Col =	10.67	ft
A =	7.10	in^2
I =	70.70	in^4
Cm =	1.00	
Pe1 =	393.14	kips
B1 =	1.04	(A-8-3)
P,All =	175.01	kips
M, All =	44.10	kip-ft

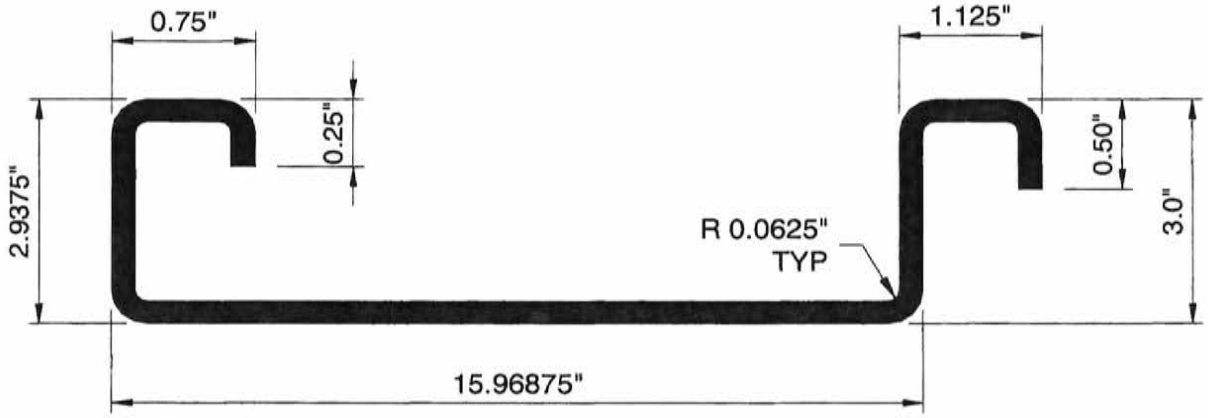
Load Combination	Pr, Kips	Mr, Kip-ft	Equation	Result
D+L	8.60	0.40	0.03	OK
D+W	2.47	4.96	0.12	OK
D+0.7E	2.47	1.70	0.05	OK
D+0.75W+0.75L	7.07	3.96	0.11	OK
D+0.525E+0.75L	7.07	1.52	0.05	OK

Top Connection : Standard Cap Plate	Base Plate : LBP 8 - 20

FOOTING DESIGNED BY OTHERS

LANE SUPPLY, INC.

120 Fairview
Arlington, Texas 76010
817-261-9116



SL-316 DECK PANEL

Section Properties

Gage	Wt, psf	Thickness, in	ASTM 653	+I, in^4	-I, in^4	+S, in^3	-S, in^3	+M, ft-lbs/ft	-M, ft-lbs/ft
20	2.20	0.0359	Grade 40	0.9346	0.4680	0.3961	0.3036	592.70	454.44
			Grade 50	0.9208	0.4522	0.3879	0.2880	725.86	538.92
18	2.93	0.0478	Grade 40	1.2486	0.6827	0.5329	0.4377	797.77	655.28
			Grade 50	1.2129	0.6518	0.5141	0.4296	962.09	803.92

Notes:

1 Designed per AISI Cold Formed Steel Manual, 2016 ed.
2 Complete calculations are available upon request.
3 ± M is allowable bending moment.

Issued 12-5-17

LANE SUPPLY, INC.

120 Fairview
Arlington, Texas 76010
817-261-9116
FAX 817-275-1660

STANDARD BASE PLATE DESIGN

LBP # (D - M)	M (ft-k)	P_{BOLT} (k)	Bolt Dia. (in)	$t_{REQ'D}$ (in)	t_{ACTUAL} (in)	Weld Req'd (1/16 in)	Weld Actual (in)	Base Plate Mark
8 - 10	10	5.58	1 1/2	0.72	3/4	1.52	1/4	LBP 1
8 - 20	20	10.91	1 1/2	0.99	1	3.03	5/16	LBP 2
8 - 30	30	16.00	1 1/2	1.17	1 1/4	4.55	5/16	LBP 3
8 - 40	40	20.87	1 1/2	1.32	1 1/2	6.06	F.P.	LBP 4
8 - 50	50	26.09	1 1/2	1.46	1 1/2	7.58	F.P.	LBP 5

TS 8 X 8 COLUMN:

D= 8 in.
e= 2 in.
b,d= 8 in.

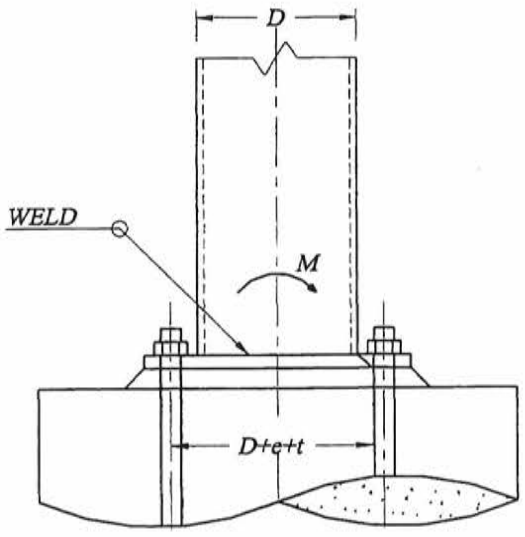
CONSTANTS:

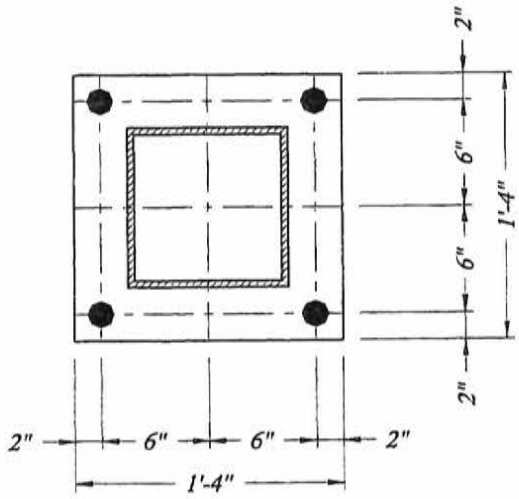
A36 Steel Plate	Fy = 36 ksi
E70xx Electrode	Fw = 0.928 k/in/16th
A307 Anchor Bolts	Ft = 20 ksi

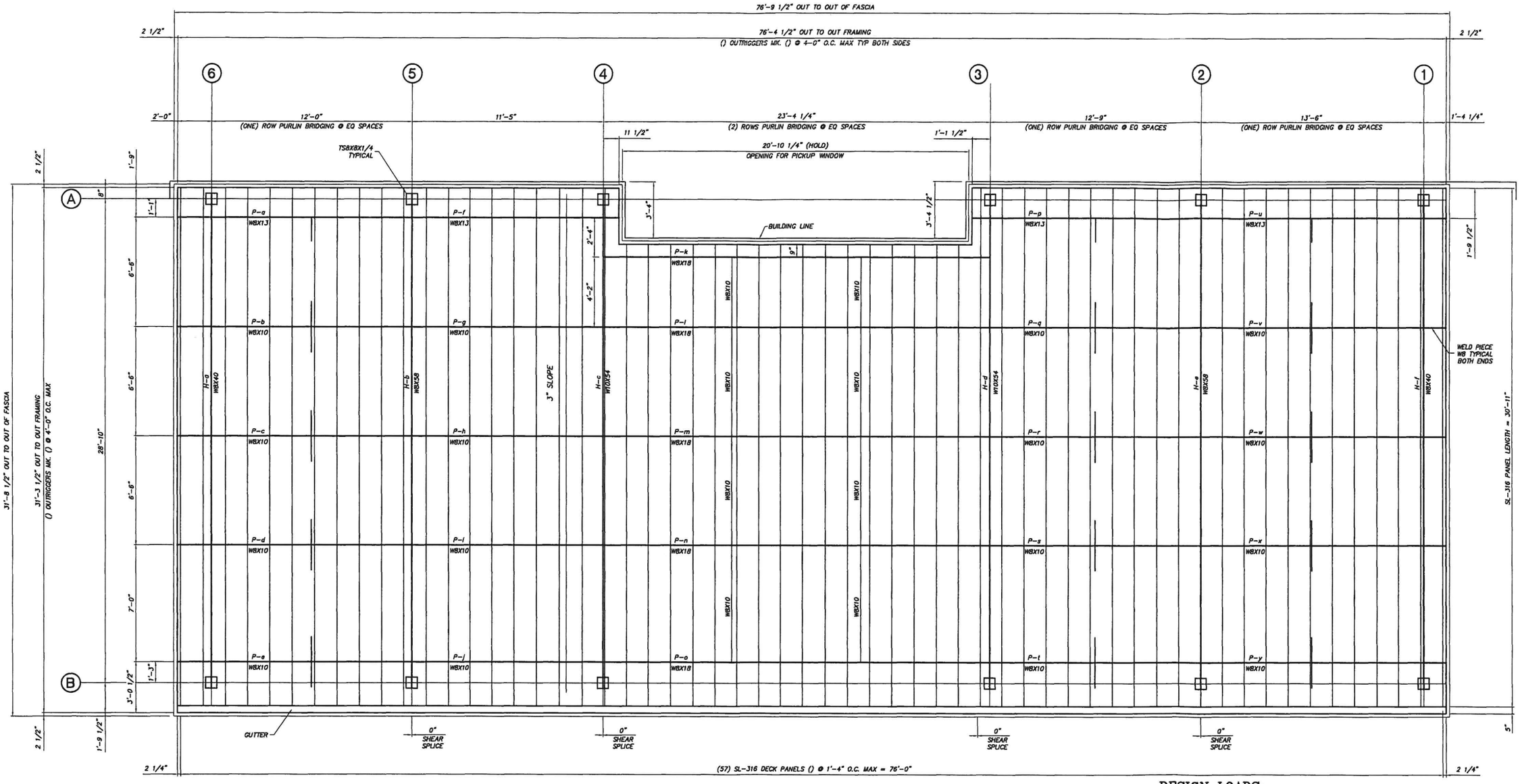
EQUATIONS:

$$P_{BOLT} = \frac{M \times 12\ in/ft}{2\ bolts\ (D+e+t)} \qquad Weld = \frac{M \times 12\ in/ft}{S_{Weld} \times Fw} = \frac{M \times 12\ in/ft}{Fw\ (bd+d^2/3)}$$

$$t_{REQ'D} = \sqrt{\frac{6 \times P \times e \times 2\ bolts}{0.75 \times Fy \times (D+2t)}}$$







CANOPY LONGITUDINAL DIRECTION

LOADS PRESENTED ARE ASD LOADS WITH FACTOR OF 1.0, EXCEPT WIND FACTORED WITH 0.6

CANOPY TRANSVERSE DIRECTION

VERTICAL SIGN CONVENTION

+

-

COLUMN DESIGN LOADS :

DEAD LOAD = 2.75 kips

LIVE/SNOW LOAD = 6.25 kips

WIND LOAD = -4.50 kips

TRANSVERSE BASE MOMENT WIND Mw = +/- 4.75 ft-kips

BASE MOMENT SEISMIC BOTH DIRECTIONS Ms = +/- 2.25 ft-kips

Mdl(Nod) = 0.11 ft-kips

Mll(nod) = 0.27 ft-kips

TRANSVERSE BASE SHEAR WIND = +/- 0.45 kips

BASE SHEAR SEISMIC BOTH DIRECTIONS = +/- 0.21 kips

DESIGN LOADS:

DEAD LOAD = 3 p.s.f.(DECK + LIGHTS) + WEIGHT OF STRUCTURAL COMPONENTS

LIVE LOAD = 20 p.s.f.

SNOW LOAD = 20 p.s.f.

WIND LOAD V,ULT = 116 m.p.h. EXP. C

WIND LOAD V,ASD = 90 m.p.h. EXP C

BLDG CODE = 2018 INTERNATIONAL BUILDING CODE

EQUIVALENT LATERAL FORCE PROCEDURE

LATERAL FORCE RESISTING SYSTEM = CANTILEVERED COLUMN SYSTEM-ORDINARY STEEL MOMENT FRAME

Pf = 20 p.s.f.

Ce = 1.2

Ct = 1.2

Is = 1.0

W = 5.06 ft

Pd = 20.98 p.s.f.

SITE CLASS = D (DEFAULT)

Ss (0.2) = 0.100

S1 (1.0) = 0.068

SDS = 0.107

SD1 = 0.109

Fa = 1.60

Fv = 2.40

R = 1.25

IMPORTANCE FACTOR = 1.0

RISK CATEGORY = II

SEISMIC DESIGN CATEGORY = B

CS = 0.085

CONSTRUCTION TYPE = VB

OCCUPANCY CATEGORY = M

TOTAL SEISMIC BASE SHEAR BOTH DIRECTIONS = 1.89 KIPS