

Job No. 3305-193681

STRUCTURAL DESIGN CALCULATIONS

PROJECT NAME

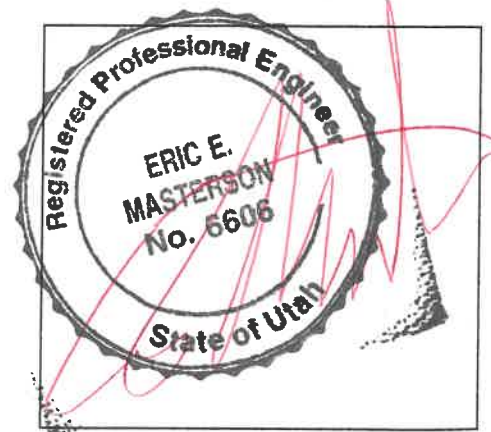
DAVIS COUNTY CED DEPARTMENT
28 EAST STATE ST.
FARMINGTON, UT 84025

COUNTY: DAVIS

CONTRACTOR

PAUL HIGLEY CONSTRUCTION
1675 S HWY 89
PERRY, UT 84302

BUILDING DESCRIPTION	CLEAR SPAN - SINGLE SLOPED BUILDING
	80' X 153'-6" X 12' EH LOW SIDE X 2.25:12 SLOPE (BAYS : 8'-6", 5 @ 25'-0", 20'-0")
BUILDING CODE	UNIFORM BUILDING CODE 1997
IMPORTANCE FACTORS	WIND=1.0 / SNOW=1.0 / SEISMIC=1.0
DEAD LOAD	WEIGHT OF METAL BUILDING STRUCTURE ONLY
LIVE LOAD	FRAME = 20 PSF / PURLINS = 20 PSF
COLL. LOAD	0 PSF
SNOW LOAD	30 PSF ROOF SNOW
WIND LOAD	100 MPH EXP. C
SEISMIC	ZONE 3, Ca=0.36



DESIGN PROFILE

002

REV.# 

Date: _____

Rev Pages _____

Customer: PAUL HIGLEY CONSTRUCTIONJob No : 3305 - 193681Job Site : DAVIS, UTDesigned : MOISESChecked By: SAAD HDesign Code & Edition UPC 1997Date : 04.06.01Bldg. Dimension: SS 80' X 153'-6" X 12' EH LS

Modular Spa: _____

Slope: 2.25 : 12Bay spacing: 8'-6", 5 @ 25', 20'-0"Roof Dead Load 2.0 psf Coll. Load 0 psf Other N.ARoof Live Load: Primary 20 psf Secondary 20 psfSnow Load ☒ Roof 30 psf ☐ Ground _____ psf, Ce = _____Wind Load 100 ☒ mph ☐ psf Exposure CSeismic Zone = 3 Ca = 0.36 Na = - Aa = - Av = -

Seismic Hazard Exposure Group : _____ Seismic Performance Category = _____

Site Coefficient = _____ Response Modification Factor (R) = 4.5 / 5.6 Deflection Amplification Factor (Cd) = _____Analysis Procedure Equivalent lateral forceBasic Structural System: Dual system w/ Ordinary Moment frames of steel & concentrically braced frames☐ Add Std Note #15, _____ % roof snow load used to calculate seismic load.IMPORTANCE FACTORS: Wind Load = 1 Snow Load = 1 Seismic Load = 1PURLIN: ☐ UL-90 Rating ☐ 5'.0" O.C. (Std.) ☐ On-Slope

sizes per run:

8Z/3 8Z/2 8Z/4 8Z/4 8Z/4 8Z/4 8Z/6

8'-6" X L 25' L X 25' X X 25' X X 25' X X 20'

Connections: ☐ Std. connection u.n. ☒ 4-bolt connection @ frame lines # ALL FRM LINESUp-lift strap: ☐ Yes ☒ No spacing @ end bays _____ @ int. bays _____Knock-In Bridging ☐ Yes ☒ No spacing @ end bays _____ @ int. bays _____Tie peak-purlins ☒ Yes ☐ No ☒ 6C16 ☐ 8C16 2 per bay (25' SPAN), REST (1)-EA BAYAnti-Roll Clip ☒ Yes ☐ No Purlin # 5, 10, 15 (start from eave to ridge, symmetrical unless noted.)**EAVE STRUT:**FRONT SIDE ☐ 16ga _____ ☐ 14ga _____ ☒ 12ga _____ ☐ purlins at FSW eaveClip SC- 17 ☐ not required ☒ req. at braced bay only ☐ strut-zee required ☒ see bracing layoutBACK SIDE ☐ 16ga _____ ☐ 14ga _____ ☒ 12ga _____ ☐ purlins at BSW eaveClip SC- 17 ☐ not required ☐ req. at braced bay only ☒ strut-zee required ☒ see bracing layout

BAY 1 & 2 : 32 @ 2'-6" LOW EAVE

BAY 3 TO 7 : 2 @ 2'-6", 14 @ 5', 2 @ 2'-6" TO HIGH EAVE

SIDE WALLS:

JOB # 193681

003

FRONT SIDE☒ BY PASSW/ ☐ SL☐ LL☐ XLL☐ FLUSHW/ ☐ L. CLIP☐ S. CLIP

sizes/laps



Elev.

☐ 3'-6"☐ 7'-4☐ 11'-4☐ 13'-4☐ 17'-4☐ 10'-4☐ 19'-4☒ 8'-0 +☐ _____☐ _____☒ to remain open153'-6 X 8'☐ open for collateral by other:☐ spandrel beam:☐ with-out spandrel beam (Std. Note #5)☐ Framed opening:☐ DET S75☐ DET S76☐ JAMBS 8 X 3 1/2 C☐ HEADER 8 X 3 1/2 CBACK SIDE:☒ Same as Front Side☒ BY PASSW/ ☐ SL☐ LL☐ XLL☐ FLUSHW/ ☐ L. CLIP☐ S. CLIP

sizes/laps

SEE F.S.W. FOR LAPS (USE 8 Z/G TYP)

Elev.

☐ 3'-6"☐ 7'-4☐ 11'-4☐ 13'-4☐ 17'-4☐ 10'-4☐ 19'-4☒ 15'-4☒ 19'-4☒ 23'-4☒ to remain open:153'-6 X 15'☐ open for collateral by other:☐ spandrel beam:☐ with-out spandrel beam (Std. Note #5)☐ Framed opening:☐ DET S75☐ DET S76☐ JAMBS 8 X 3 1/2 C☐ HEADER: 8 X 3 1/2 C

ENDWALLS: ☒ LEFT EW ☒ RIGHT EWJOB # 193681

004

GIRTS:

☒ FLUSHW/ ☐ S. CLIP☐ L. CLIP☐ BY PASSW/ ☐ SL☐ LL☐ XLL

sizes:

NO GIRTS

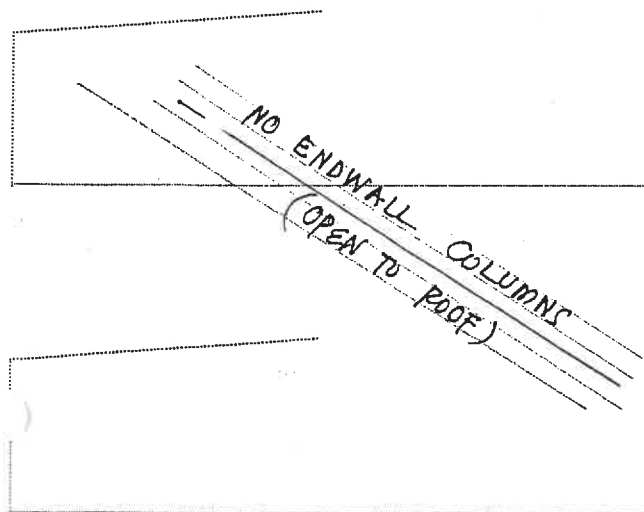
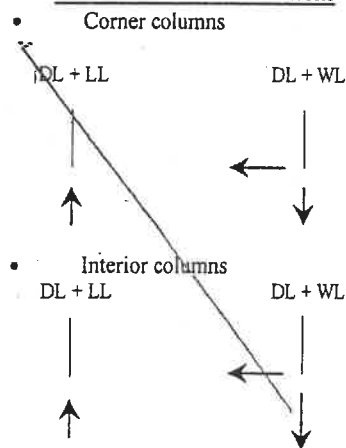
Elev.

☐ 3'-6"☐ 7'-4☐ 11'-4☐ 13'-4☐ 17'-4☐ 10'-4☐ 19'-4☐ _____☐ _____☐ _____☒ to remain openFULL HT (LE + RE)☐ open for collateral by others☐ spandrel beam☐ with-out spandrel beam (Std. Note #5)**RAFTER:**

BEARING FRAME ☐ Left EW ☐ Right EW			MAIN FRAME ☒ Left EW ☒ Right EW	
			Inset : <u>1'-3</u> <u>1'-3</u>	
☐ 8X3 1/2 C12	☐ 8X3 1/2 C13	☐ 8X3 1/2 C14	☐ 10X3 1/2 C12	☐ 12X3 1/2 C12
☐ LEW ☐ REW	☐ LEW ☐ REW	☐ LEW ☐ REW	☐ LEW ☐ REW	☐ LEW ☐ REW

☐ W _____ x _____ (50 ksi) with F.B. @ column and @ 5' on either side of column & every other purlin☐ 4 - 5/8" A325 bolts column to rafter connection with 1/4" knife plate☐ Interior EW columns ☐ All EW columns☐ 1/4" thick full depth rafter stiffener (NS+FS)☐ required ☐ not required**ENDWALL LAYOUT AND COLUMN SIZES**

EW Columns & BF Rafters : 8 X 3 1/2 C unless noted.

**Endwall Column Reactions**

BRACING:

JOB # 193681

Page 4

005

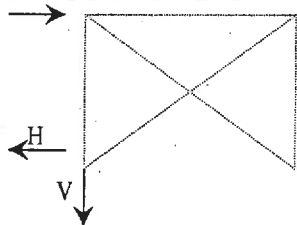
<u>Roof</u>	☒ Cable brace bay # <u>2 AND 6</u> tiers @: _____	☐ Diaphragm (Std. Note #20) _____ ft.
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<u>Front side</u>	☒ Cable brace bay # <u>2 & 6</u>	☐ FB Column @ frame # _____	☐ Diaphragm (Std. Note #20) _____ ft.
	☐ Portal frame @ bay # _____		

<u>Back side</u>	☒ Cable brace bay # <u>2 & 6</u>	☐ FB Column @ frame # _____	☐ Diaphragm (Std. Note #20) _____ ft.
	☐ Portal frame @ bay # _____		

<u>Left EW</u>	☐ Cable brace bay # _____	☒ MF Endwall	☐ Diaphragm (Std. Note #20) _____ ft.
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<u>Right EW</u>	☐ Cable brace bay # _____	☒ MF Endwall	☐ Diaphragm (Std. Note #20) _____ ft.
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Cable bracing reaction at SW

REACTION	H	V
Wind	8.70	9.40
Seismic	7.75	8.37

← WIND GOVERNS

Built-up fixed-base column

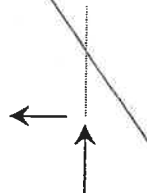
Flange: _____

Web: _____

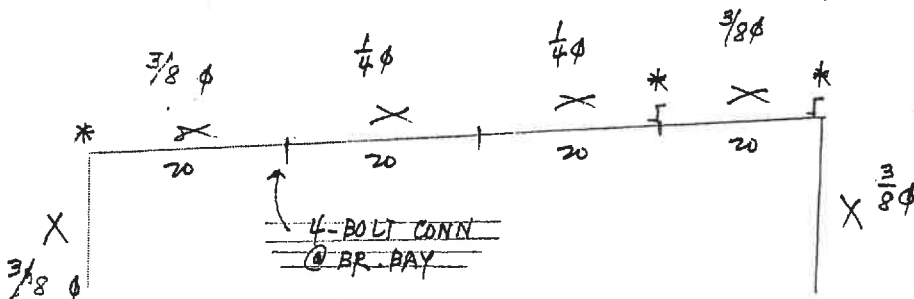
A/B & Base Plate: _____

Fixed Base column reaction

2- 5/8 @ 5'-0" O.C.

Bracing Layout

* ☒ Eave Clips SC-17 required at braced bay only unless noted. Use ☐ 1/2 φ-A307 bolts, ☒ 1/2 φ-A325 bolts.
☒ Strut Purlins 8x12 with ☐ 4-1/2 φ A307 bolts each end, ☒ 4-1/2 φ A325 bolts each end

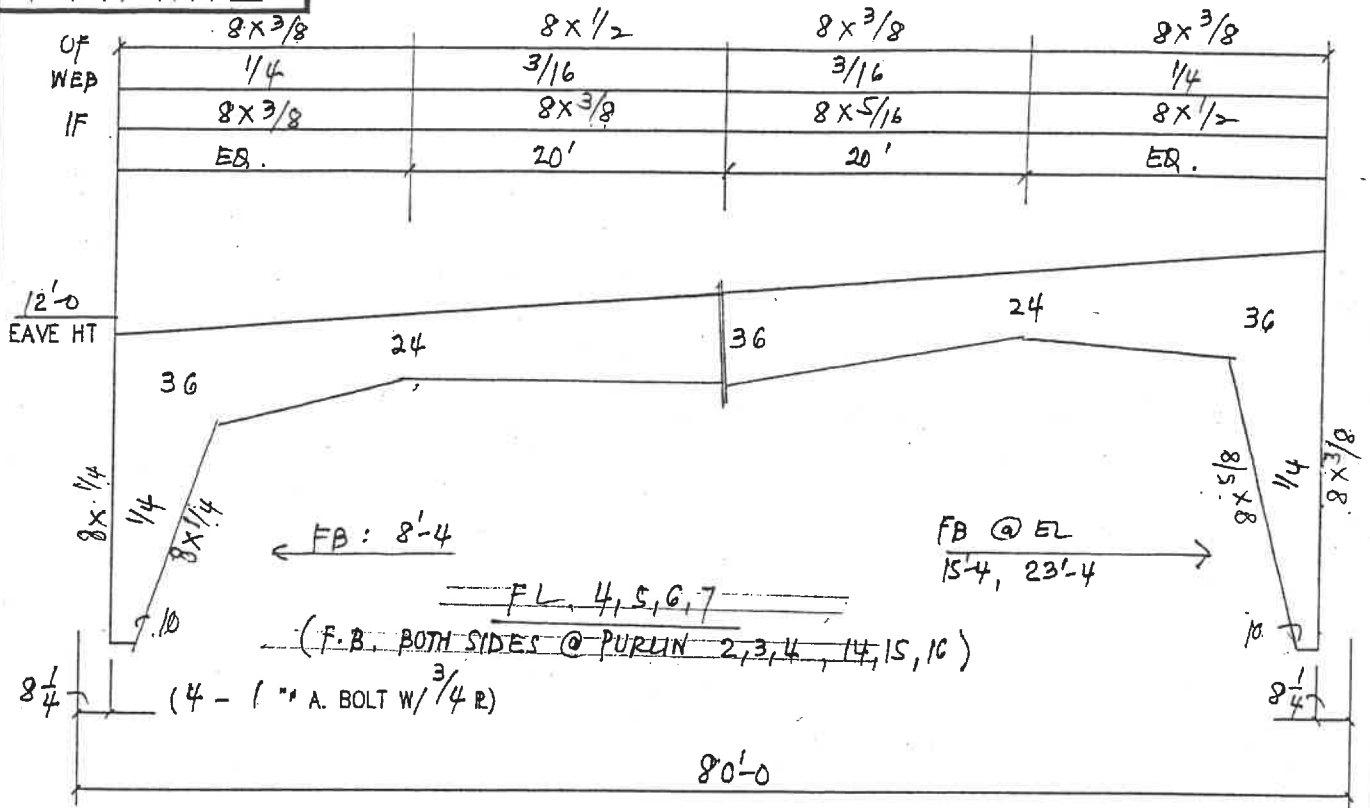


FRAME

SLOPE: $2\frac{1}{2}:12$

JOB NUMBER: 193681

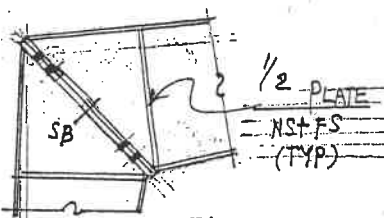
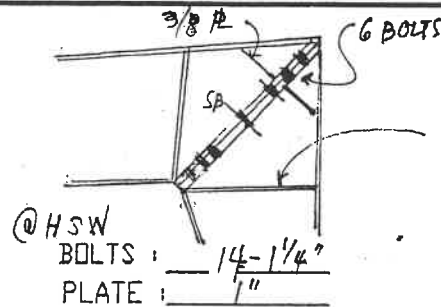
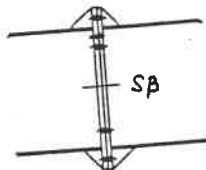
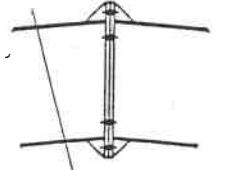
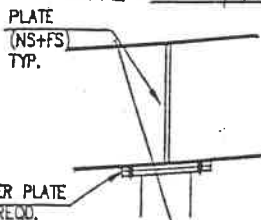
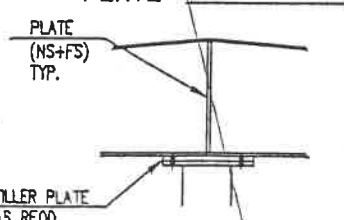
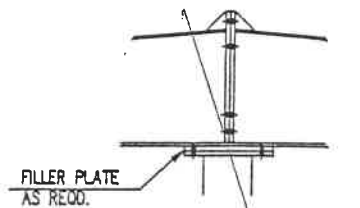
SHEET NO. 5 of REV.



* FLANGE BRACES *

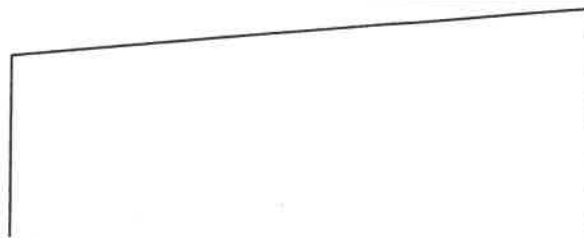
ROOF: 2, 3, 4, 6, 8, 10, 12, 14, 15, 16
(LOW EAVE TO HIGH EAVE)

* FLANGE BRACES *

WALL: SEE ABOVE.
(BASE TO EAVE)BOLTS: 10-7/8"
PLATE: 5/8" FSW1" PLATE
(NS+FS)
TYP.BOLTS: 12-1"
PLATE: 3/4"BOLTS:
PLATE:BOLTS:
PLATE:BOLTS:
PLATE:BOLTS:
PLATE:NOTE:
ALL BOLTS ARE HI-STRENGTH ASTM A325.

5408 #

12/27/1999 FRAM



Frame Reaction Schematic (all reactions are in kips, 1 kip = 1,000 pounds)

Moment +

Description	Grid	Ver	Hor	Moment	Description	Grid	Ver	Hor	Moment
DEAD + LIVE LOAD	A	34.054	22.464	0.000					
DEAD + LIVE LOAD	B	34.747	-22.459	0.000					
DL + WLL	A	-34.801	-23.632	0.000					
DL + WLL	B	-36.811	22.113	0.000					
DL + 1/2LL + WLL	A	-19.792	-13.638	0.000					
DL + 1/2LL + WLL	B	-21.838	12.121	0.000					
DL + 1/2WLL + LL	A	14.635	9.410	0.000					
DL + 1/2WLL + LL	B	13.941	-10.164	0.000					
DL + WLR	A	-11.696	4.529	0.000					
DL + WLR	B	-19.689	22.851	0.000					
DL + 1/2LL + WLR	A	3.313	14.522	0.000					
DL + 1/2LL + WLR	B	-4.716	12.860	0.000					
DL + 1/2WLR + LL	A	26.188	23.490	0.000					
DL + 1/2WLR + LL	B	22.502	-9.795	0.000					
DL + EQL/1.4	A	3.436	-1.101	0.000					
DL + EQL/1.4	B	5.402	-3.498	0.000					
DL + EQR/1.4	A	4.638	6.055	0.000					
DL + EQR/1.4	B	4.201	-1.455	0.000					

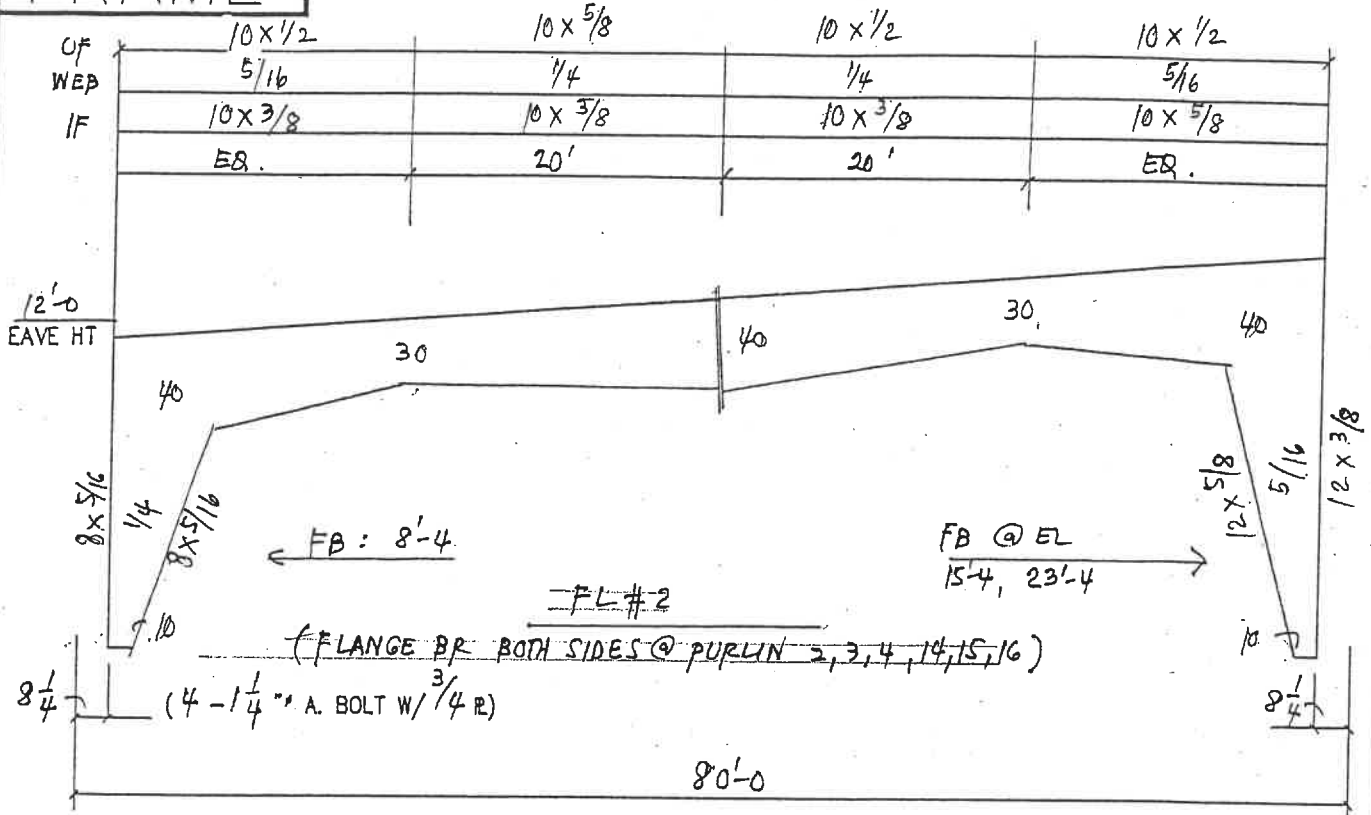
FRAME

SLOPE: 2 1/2:12

JOB NUMBER: 193681

SHEET NO. 7 of REV.

008

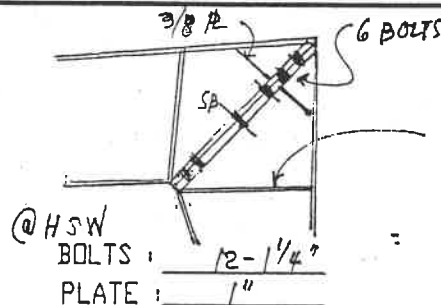
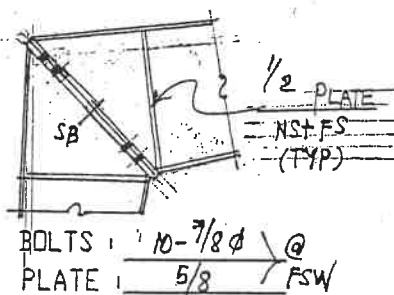


* FLANGE BRACES *

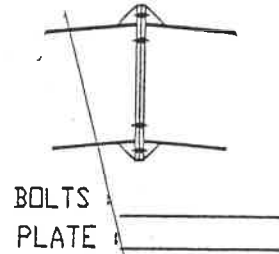
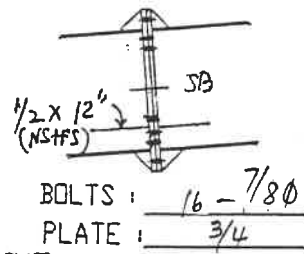
ROOF: 2, 3, 4, 6, 8, 10, 12, 14, 15, 16
(LOW EAVE TO HIGH EAVE)

* FLANGE BRACES *

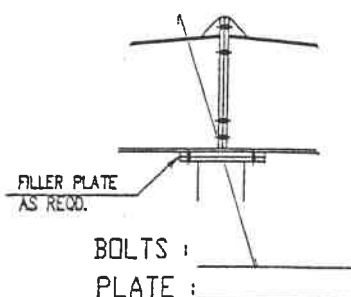
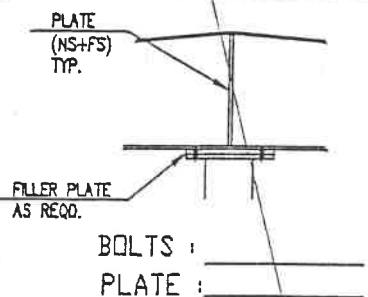
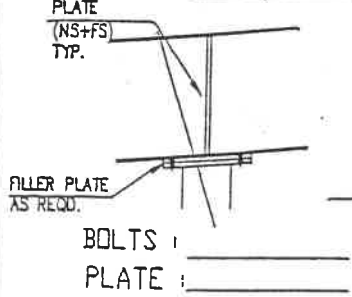
WALL: SEE ABOVE.
(BASE TO EAVE)



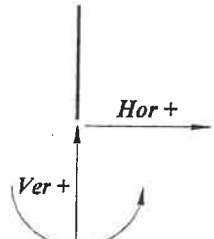
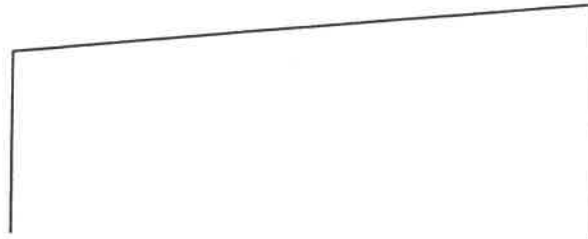
1" PLATE
(NS+FS)
TYP.



NOTE:
ALL BOLTS ARE HI-STRENGTH ASTM A325.



12/27/1999 FRAM. 7870 #



Frame Reaction Schematic (all reactions are in kips, 1 kip = 1,000 pounds)

Moment +

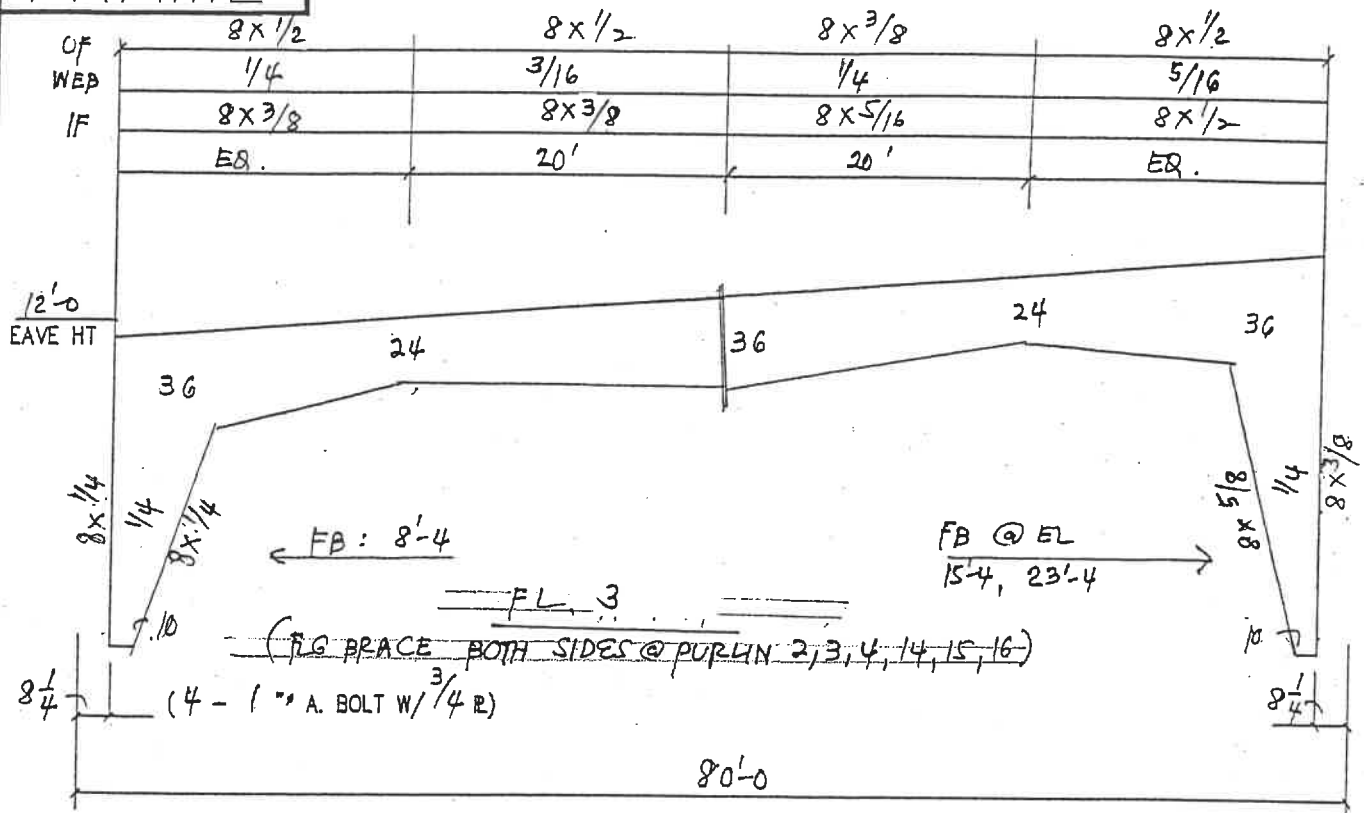
Description	Grid	Ver	Hor	Moment	Description	Grid	Ver	Hor	Moment
DEAD + LIVE LOAD	A	61.067	40.405	0.000					
DEAD + LIVE LOAD	B	62.027	-40.373	0.000					
DL + WLL	A	-33.853	-23.091	0.000					
DL + WLL	B	-35.377	21.554	0.000					
DL + 1/2LL + WLL	A	-5.812	-4.418	0.000					
DL + 1/2LL + WLL	B	-7.433	2.895	0.000					
DL + 1/2WLL + LL	A	41.648	27.331	0.000					
DL + 1/2WLL + LL	B	41.269	-28.068	0.000					
DL + WLR	A	-10.772	5.126	0.000					
DL + WLR	B	-18.276	22.244	0.000					
DL + 1/2LL + WLR	A	17.269	23.800	0.000					
DL + 1/2LL + WLR	B	9.668	3.586	0.000					
DL + 1/2WLR + LL	A	53.188	41.439	0.000					
DL + 1/2WLR + LL	B	49.820	-27.723	0.000					
DL + EQL/1.4	A	4.388	-0.497	0.000					
DL + EQL/1.4	B	6.733	-4.100	0.000					
DL + EQR/1.4	A	5.580	6.614	0.000					
DL + EQR/1.4	B	5.542	-2.011	0.000					

FRAME

SLOPE: 2 1/2:12

JOB NUMBER: 93681

SHEET NO. 9 of REV.

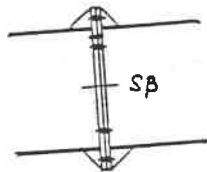
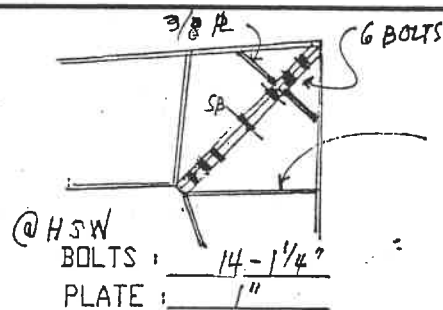
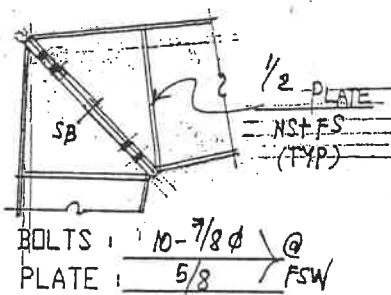


* FLANGE BRACES *

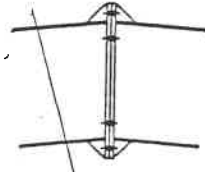
ROOF: 2, 3, 4, 6, 8, 10, 12, 14, 15, 16
(LOW EAVE TO HIGH EAVE)

* FLANGE BRACES *

WALL: SEE ABOVE.
(BASE TO EAVE)



BOLTS: 12-1"φ
PLATE: 3/4



BOLTS:
PLATE:

PLATE (NS+FS) TYP.

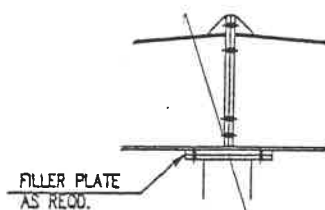
PLATE (NS+FS) TYP.

FILLER PLATE AS REQD.

FILLER PLATE AS REQD.

BOLTS:
PLATE:

BOLTS:
PLATE:

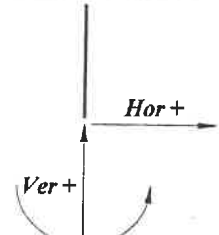
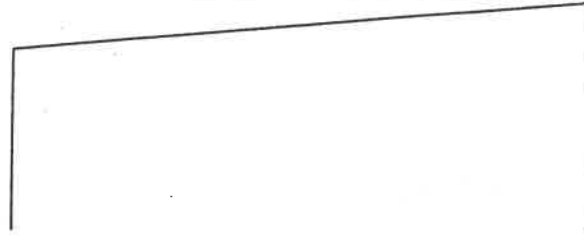


BOLTS:
PLATE:

NOTE:
ALL BOLTS ARE HI-STRENGTH ASTM A325.

5705 #

12/27/1999 FRM



Frame Reaction Schematic (all reactions are in kips, 1 kip = 1,000 pounds)

Moment +

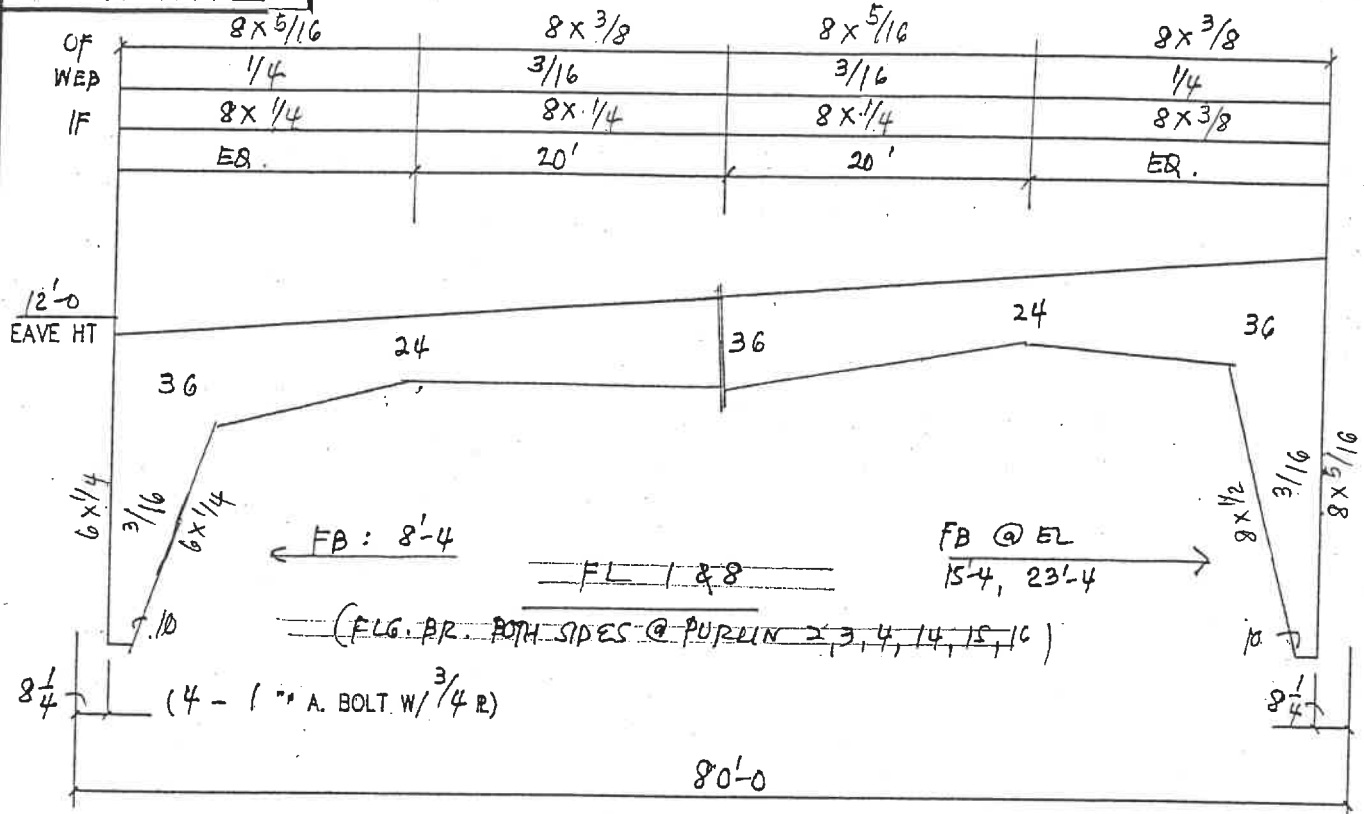
Description	Grid	Ver	Hor	Moment	Description	Grid	Ver	Hor	Moment
DEAD + LIVE LOAD	A	39.921	27.121	0.000					
DEAD + LIVE LOAD	B	40.453	-27.115	0.000					
DL + WLL	A	-34.766	-24.362	0.000					
DL + WLL	B	-36.554	22.843	0.000					
DL + 1/2LL + WLL	A	-16.890	-12.121	0.000					
DL + 1/2LL + WLL	B	-18.806	10.604	0.000					
DL + 1/2WLL + LL	A	20.453	13.621	0.000					
DL + 1/2WLL + LL	B	19.697	-14.375	0.000					
DL + WLR	A	-11.600	4.073	0.000					
DL + WLR	B	-19.495	23.306	0.000					
DL + 1/2LL + WLR	A	6.275	16.314	0.000					
DL + 1/2LL + WLR	B	-1.747	11.068	0.000					
DL + 1/2WLR + LL	A	32.036	27.838	0.000					
DL + 1/2WLR + LL	B	28.227	-14.143	0.000					
DL + EQL/1.4	A	3.564	-0.894	0.000					
DL + EQL/1.4	B	5.564	-3.706	0.000					
DL + EQR/1.4	A	4.778	6.171	0.000					
DL + EQR/1.4	B	4.351	-1.570	0.000					

FRAME

SLOPE: 2 1/2:12

JOB NUMBER: 193681

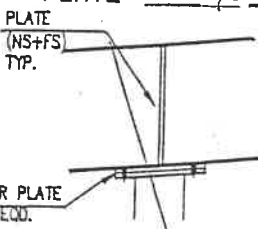
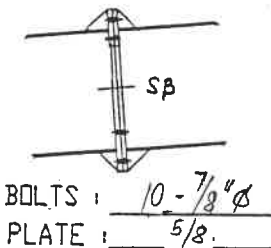
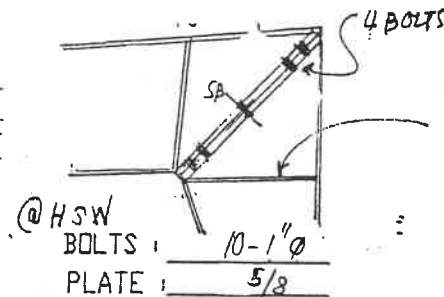
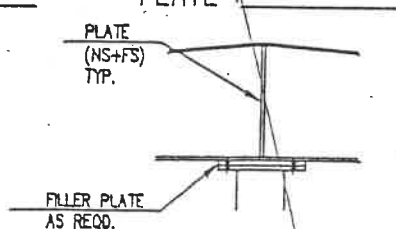
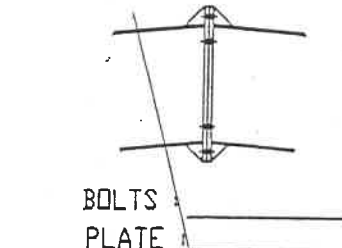
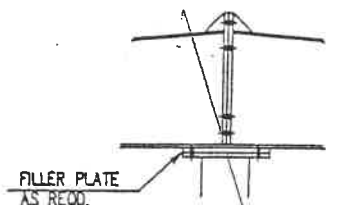
SHEET NO. 11 of REV.



* FLANGE BRACES *

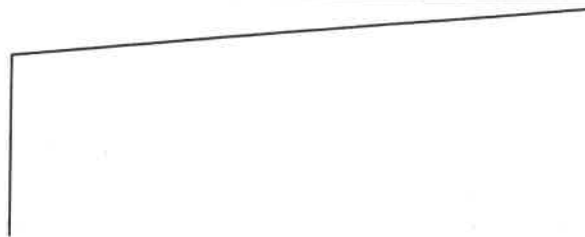
ROOF: 2, 3, 4, 6, 8, 10, 12, 14, 15, 16
(LOW EAVE TO HIGH EAVE)

* FLANGE BRACES *

WALL: SEE ABOVE.
(BASE TO EAVE)BOLTS: 10-7/8" @
PLATE: 5/8 FSWBOLTS: _____
PLATE: _____BOLTS: _____
PLATE: _____NOTE:
ALL BOLTS ARE HI-STRENGTH ASTM A325.BOLTS: _____
PLATE: _____

4530 #

12/27/1999 FRAME



Frame Reaction Schematic (all reactions are in kips, 1 kip = 1,000 pounds)

Moment +

Description	Grid	Ver	Hor	Moment	Description	Grid	Ver	Hor	Moment
DEAD + LIVE LOAD	A	25.716	17.057	0.000					
DEAD + LIVE LOAD	B	26.300	-17.056	0.000					
DL + WLL	A	-12.961	-8.964	0.000					
DL + WLL	B	-13.463	8.358	0.000					
DL + 1/2LL + WLL	A	-1.389	-1.217	0.000					
DL + 1/2LL + WLL	B	-1.910	0.612	0.000					
DL + 1/2WLL + LL	A	17.950	11.794	0.000					
DL + 1/2WLL + LL	B	17.972	-12.096	0.000					
DL + WLR	A	-3.715	2.311	0.000					
DL + WLR	B	-6.613	8.642	0.000					
DL + 1/2LL + WLR	A	7.857	10.059	0.000					
DL + 1/2LL + WLR	B	4.940	0.895	0.000					
DL + 1/2WLR + LL	A	22.573	17.432	0.000					
DL + 1/2WLR + LL	B	21.397	-11.954	0.000					
DL + EQL/1.4	A	1.968	-1.980	0.000					
DL + EQL/1.4	B	3.799	-2.619	0.000					
DL + EQR/1.4	A	3.178	5.105	0.000					
DL + EQR/1.4	B	2.589	-0.505	0.000					

BUILDING TYPE SS Clear span = CS, Single Slope = SS, Modular Span = MS

Width	80.00	ft
Distance to ridge	80.00	ft
Typical purlin spacing	5.00	ft
Frame modular spacing	80.00	ft
Front SW Eave ht	12.00	ft
Slope (x : 12)	2.25	

Building length	153.50	ft
Design Bay spacing	25.00	ft
Girt spacing	5.00	ft
EW column spacing	20.00	ft
Back SW Eave ht	27.00	ft

Building Occupancy	<u>D</u>
A: Essential facilities	
B: Primary occupancy > 300.	
C: Agricultural Buildings.	
D: All others.	

DEAD LOADS

Roof Panel & Purlin DL	2.00	psf
Framing DL	3.00	psf
Total Roof DL	5.00	psf

LIVE LOADS

Roof Live Load	20.00	psf
Collateral Load	0.00	psf
LL Reduction (Y/N)	N	
Frame Live Load	20.00	psf
Design Live Load	30.00	psf

WIND LOADS

Wind speed, mph	100
Importance Factor	1.00
Exposure Factor	C
Exposure Condition :	P

Enclosed / Partially Enclosed / Open (E / P / O)

Wind stagnation press, q_s =	25.60	psf
Wind coefficient, C_e =	1.123	
Design wind pressure, p =	28.749	x C_q

ROOF EXTENSIONS

		feet
LEW Purlin extn (Y/N)	N	0.00
REW Purlin extn (Y/N)	N	0.00
LEW Parapet / Fascia (Y/N)	N	0.00
REW Parapet / Fascia (Y/N)	N	0.00
FSW Canopy (Y/N)	N	0.00
BSW Canopy (Y/N)	N	0.00

Weight	Wall Type	Wall Thk	Spandrel Req'd?
Front SW DL	PANEL	1.5	N
Back SW DL	PANEL	1.5	N
Left EW DL	OPEN	0	N
Right EW DL	OPEN	0	N

Panel / CMU / Stud**SNOW LOADS**

Ground Snow Load	30.0	psf
Snow Coeff, C_e	1.0	
Importance Factor, I	1.00	
Roof Snow Load, P_f	30.0	psf
Unbalanced Snow for Leeward Roof	NA	psf
Unbalanced Snow for Windward Roof	NA	psf

COMPONENTS

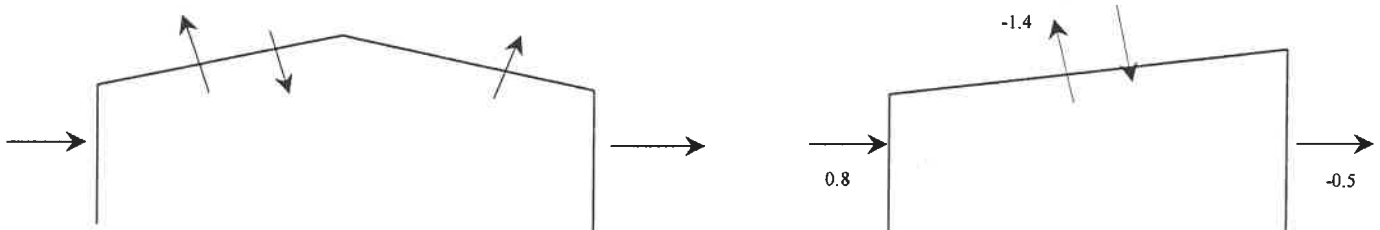
	Pressure	Suction
Purlins	0.50	-1.30
Eave Strut and Canopy	0.00	-1.80
Girts	0.90	-1.30
Ew Columns	0.90	-1.30
Ew Rafters	-	-1.80
Int. Strip bracing	0.80	-0.50
Edge strip bracing	1.20	-1.20

Main Wind Force Resisting System

WW Wall	WW Roof	LW Roof	LW Wall
C_{q1}	C_{q2}	C_{q3}	C_{q4}
0.8	-1.4	-1.2	-0.5
0.8	-0.2	-1.2	-0.5

Longitudinal Bracing

Type	Braced Bay	"D"	Panel Diaphragm
Roof Bracing	1	"C"	Cable Bracing
FSW Bracing	1	"P"	Wind Bent or Portal Bracing
BSW Bracing	1	"F"	Fixed Base Column

**WIND COEFFICIENT**

SEISMIC ANALYSIS

Seismic Zone =	3
Soil Type =	Sd
Z =	0.300
Period, T =	0.23

Importance Factor, I =	1.00
Nv =	0.00 (required for Zone 4 only)
Na =	0.00 (required for Zone 4 only)
Ca =	0.36
Cv =	0.54

	<u>Longitudinal Analysis</u>		<u>Transverse</u>
	<u>Cable</u>	<u>Fixed Base</u>	<u>Analysis</u>
$\Omega =$	2.20	2.00	2.80
$R =$	5.60	2.20	4.50

LONGITUDINAL SHEAR

Total Roof DL =	61.40	kips
LEW DL =	0.00	kips
REW DL =	0.00	kips
Total DL =	61.40	kips
SL for Seismic =	0.00	kips

Max $V = (C_v \cdot I / R / T) W =$	26.24	kips
$V = (2.5 \cdot Ca \cdot I / R) W =$	9.87	kips
Min $V = (0.11 \cdot Ca \cdot I) W =$	2.43	kips
Zone 4, $V_{min} = (0.8 \cdot Z \cdot N_v \cdot I / R) W =$	0	kips

FSW Shear, $V =$	4.93	kips/ braced bay
BSW Shear, $V =$	4.93	kips/ braced bay

FSW Design Shear, $E_m = \Omega \times V / 1.4 =$	7.75	kips/ braced bay
BSW Design Shear, $E_m = \Omega \times V / 1.4 =$	7.75	kips/ braced bay

TRANSVERSE SHEAR	25.0	ft (bay spacing)
Total Roof DL =	10.00	kips
FSW DL =	0.45	kips
BSW DL =	1.01	kips
Total DL =	11.46	kips
SL for Seismic =	0.00	kips

Max $V = (C_v \cdot I / R / T) W =$	6.10	kips
$V = (2.5 \cdot Ca \cdot I / R) W =$	2.29	kips
Min $V = (0.11 \cdot Ca \cdot I) W =$	0.45	kips
Zone 4, $V_{min} = (0.8 \cdot Z \cdot N_v \cdot I / R) W =$	0	kips

Reliability / Redundancy Factor, ρ

Transv Shear, $V_t = 2.5 \cdot Ca \cdot I \cdot W / R =$	12.28	kips
$R_{max} = 2 \cdot \text{Frame } V / V_t =$	0.37	
$Ab = L \times W =$	12280	ft ²
$\rho = 2 - [20 / R_{max} \cdot \sqrt{Ab}] =$	1.52	
use $\rho =$	1.50	

Design Frame Shear, $E_h = V \cdot \rho / 1.4 =$	2.46	kips
for Connection Design, use: $E_m = V \cdot \Omega / 1.4 =$	4.59	kips

JOB NO. 193681 016
 QUOTE NO. _____
 DESIGNED BY MOISES CHK'D BY _____
 DATE 04.06 SHEET NO. _____

JOB TITLE PAUL HIGLEY CONSTRUCTION
 DESCRIPTION SNOW LOAD CALCULATIONS

DATA: $P_F = 30 \text{ psf}$ $C_E = 0.70$

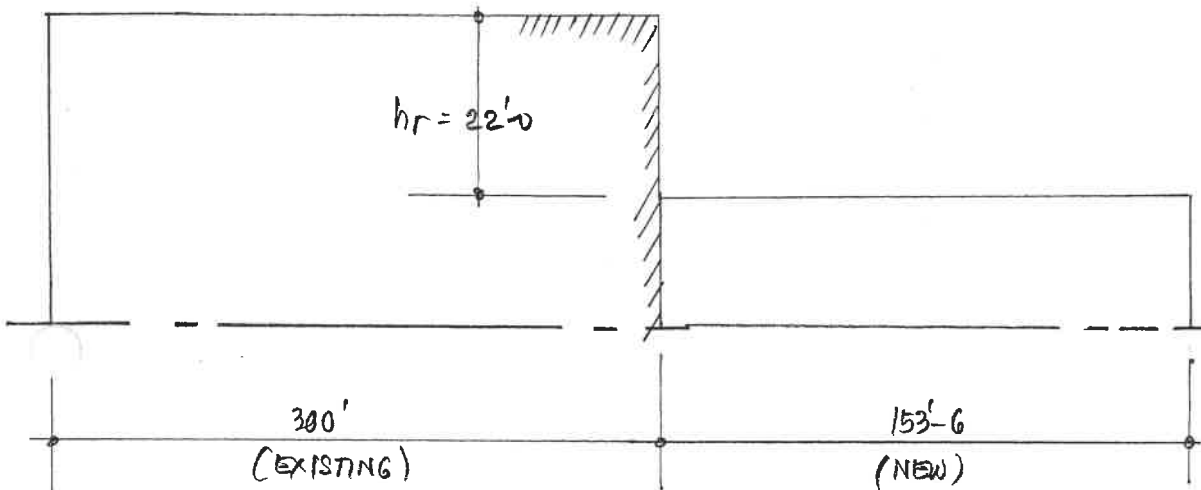
$$P_g = \frac{30}{0.7} \text{ psf} = 42.85 \text{ psf}$$

$$D = 0.13 P_g + 14$$

$h_r = 22'$ (BELOW EXISTING)

$$D = 19.57 \text{ psf}$$

$$h_b = \frac{30}{19.57} = 1.532 \text{ ft}$$



$$\therefore W_B = 300'$$

$$h_d = 0.43 \sqrt[3]{W_B} \cdot \sqrt[4]{P_g + 10} - 1.5$$

$$h_d = 6.25 \text{ ft}$$

$$P_m = (6.25)(19.57) = 122.3 \text{ psf} \approx \underline{123} \text{ psf}$$

$$W_d = (6.25)(4) = 24.9' \approx \underline{25} \text{ FEET.}$$

*** PURLIN DESIGN ***

JOB NUMBER : 193681
(FULL OPTIMIZATION)

*** GEOMETRIC DATA ***

BAY SPACING (FEET) : 8.5, 5@25., 20.
 INSET LEFT (FEET) : 1.250 INSET RIGHT (FEET) : 1.250
 PURLIN EXTN LEFT (FT.): .00000 PURLIN EXTN RIGHT (FT.) : .00000
 ROOF SLOPE : 2.250/12 HORIZONTAL SPACING (FT.): 5.00000
 PURLIN DEPTH (INCH) : 8.00

TOP FLANGE BRACED AT 1.00 FEET

*** DESIGN CRITERIA ***

DEAD LOAD (PSF) : 2.00 LIVE LOAD (PSF): 30.00
 WIND VELOCITY PRESSURE (q): 28.750 PSF SPECIAL WIND COEFF.: -1.30
 MAX. COMBINED SHEAR AND BENDING UNITY CHECK : 1.035
 MAX. SHEAR OR BENDING UNITY CHECK : 1.035
 MAX. DEFLECTION LIMIT PER SPAN : L/180.

*** LOADING COMBINATION ***

1. DL+LL
2. DL+WL
3. DL+0.5LL+WL
4. DL+LL+0.5WL

*** SPECIAL LOADS ***

SPANS	COND.	DIR	TYPE	STARTING LOCATION	LOAD LENGTH	STARTING LOAD	ENDING LOAD
1	LL	Y	VARY	0.	1.25	-.3075	-.2925
2	LL	Y	VARY	0.	7.25	-.2925	-.205
3	LL	Y	VARY	0.	16.5	-.205	0

*** CRITICAL ROW SUMMARY ***

SPAN #	ANALYSIS LENGTH	LAP LEFT	SIZE OF SECTION	LAP RIGHT	WIND COEF	DL + WL (KLF)	DL + LL (KLF)
1	1.2500	.0000	8Z13	.0000	-1.3000	-.1803	.1573
2	7.2500	.0000	8Z13	2.4791	-1.3000	-.1803	.1573
3	25.0000	1.2291	8Z12	1.2291	-1.3000	-.1803	.1573
4	25.0000	2.4791	8Z14	2.4791	-1.3000	-.1803	.1573
5	25.0000	2.4791	8Z14	2.4791	-1.3000	-.1803	.1573
6	25.0000	2.4791	8Z14	2.4791	-1.3000	-.1803	.1573
7	25.0000	2.4791	8Z14	1.2291	-1.3000	-.1803	.1573
8	18.7500	2.4791	8Z16	.0000	-1.3000	-.1803	.1573
9	1.2500	.0000	8Z16	.0000	-1.3000	-.1803	.1573

*** FLANGE BRACE INFORMATION ***

018

SPAN NO	LENGTH (FT.)	OUTSIDE BRACES	INSIDE BRACES
1	1.250	2@1.0000	1@1.2500
2	7.250	8@1.0000	1@7.2500
3	25.000	25@1.0000	1@25.0000
4	25.000	25@1.0000	1@25.0000
5	25.000	25@1.0000	1@25.0000
6	25.000	25@1.0000	1@25.0000
7	25.000	25@1.0000	1@25.0000
8	18.750	19@1.0000	1@18.7500
9	1.250	2@1.0000	1@1.2500

LOADING COMBINATION -- DL+LL

019

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY CHECKS		DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	.00!	.00!	7.75	6.88	!	.00	.00	.00!
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
1!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00!
!	RL!	.00!	.00!	.00	.00	!	.00	.00	.00!
!	RS!	-.36!	-.57!	7.75	6.88	!	.08	.05	.01!

339

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY CHECKS		DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-.36!	.18!	7.75	6.88	!	.03	.05	.00!
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
2!	FM!	-.32!	.00!	5.42	6.88	!	.00	.06	.00!
!	RL!	-4.40!	-1.83!	5.42	6.88	!	.27	.81	.73!
!	RS!	-10.11!	-2.76!	17.27	19.43	!	.14	.59	.36!

833

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY CHECKS		DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-10.11!	3.31!	17.27	19.43	!	.17	.59	.37!
!	LL!	-6.31!	2.87!	9.52	12.55	!	.23	.66	.49!
3!	FM!	7.13!	.00!	9.52	12.55	!	.00	.75	.75!
!	RL!	5.50!	-2.12!	9.52	12.55	!	.17	.58	.36!
!	RS!	-9.54!	-2.32!	15.60	16.38	!	.14	.61	.39!

209

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY CHECKS		DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-9.54!	2.03!	15.60	16.38	!	.12	.61	.39!
!	LL!	-4.98!	1.64!	5.75	3.83	!	.43	.87	.93!
4!	FM!	3.61!	.00!	6.08	3.83	!	.00	.59	.59!
!	RL!	-3.61!	-1.51!	6.01	3.83	!	.39	.60	.52!
!	RS!	-7.84!	-1.90!	12.16	7.65	!	.25	.65	.48!

388

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY CHECKS		DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-7.84!	1.95!	12.16	7.65	!	.25	.65	.48!
!	LL!	-3.49!	1.56!	6.08	3.83	!	.41	.57	.50!
5!	FM!	4.24!	.00!	6.08	3.83	!	.00	.70	.70!
!	RL!	-3.80!	-1.59!	6.02	3.83	!	.42	.63	.57!
!	RS!	-8.24!	-1.98!	12.16	7.65	!	.26	.68	.53!

273

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY CHECKS		DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-8.24!	1.96!	12.16	7.65	!	.26	.68	.53!
!	LL!	-3.86!	1.57!	6.00	3.83	!	.41	.64	.58!
6!	FM!	3.99!	.00!	6.08	3.83	!	.00	.66	.66!
!	RL!	-3.94!	-1.58!	5.98	3.83	!	.41	.66	.60!
!	RS!	-8.35!	-1.97!	12.16	7.65	!	.26	.69	.54!

309

LOADING COMBINATION -- DL+LL

020

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-8.35!	2.00!	12.16	7.65	!	.26	.69	.54!	
!LL!	-3.88!	1.61!	6.02	3.83	!	.42	.64	.59!	
7!FM!	4.35!	.00!	6.08	3.83	!	.00	.72	.72!	260
!RL!	-5.25!	-1.74!	6.08	3.83	!	.45	.86	.95!	
!RS!	-7.52!	-1.93!	11.05	6.11	!	.32	.68	.56!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-7.52!	1.87!	11.05	6.11	!	.31	.68	.56!	
!LL!	-3.37!	1.48!	4.95	2.28	!	.65	.68	.88!	
8!FM!	3.58!	.00!	4.97	2.28	!	.00	.72	.72!	349
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	-.12!	-1.08!	4.97	2.28	!	.47	.02	.22!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-.12!	.20!	4.97	2.28	!	.09	.02	.01!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
9!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	84
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.00!	.00!	.00	.00	!	.00	.00	.00!	

LOADING COMBINATION -- DL+WL

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY	CHECKS	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	.00!	.00!	10.33	9.17	!	.00	.00	.00!
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
1!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00! 377
!	RL!	.00!	.00!	.00	.00	!	.00	.00	.00!
!	RS!	.14!	.23!	10.33	9.17	!	.02	.01	.00!

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY	CHECKS	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	.14!	.30!	10.33	9.17	!	.03	.01	.00!
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
2!	FM!	.59!	.00!	10.33	9.17	!	.00	.06	.06! 965
!	RL!	3.61!	1.16!	10.33	9.17	!	.13	.35	.14!
!	RS!	7.03!	1.60!	23.02	25.91	!	.08	.31	.10!

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY	CHECKS	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	7.03!	-2.14!	23.02	25.91	!	.11	.31	.11!
!	LL!	4.54!	-1.92!	12.69	16.74	!	.11	.36	.14!
3!	FM!	-5.66!	.00!	8.88	16.74	!	.00	.64	.00! 272
!	RL!	7.13!	2.15!	12.69	16.74	!	.13	.56	.33!
!	RS!	9.90!	2.37!	20.80	21.84	!	.14	.48	.25!

!LO!MOMENT!		SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-

	!LS!	9.90!	-2.28!	20.80	21.84	!	.14	.48	.25!	
	!LL!	4.81!	-1.83!	8.10	5.10	!	.36	.59	.48!	
4!	!FM!	-4.50!	.00!	5.67	5.10	!	.00	.79	.00!	279
	!RL!	4.30!	1.78!	8.10	5.10	!	.35	.53	.40!	
	!RS!	9.27!	2.23!	16.21	10.20	!	.29	.57	.41!	

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY	CHECKS	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	9.27!	-2.25!	16.21	10.20	!	.29	.57	.41!
!	LL!	4.24!	-1.80!	8.10	5.10	!	.35	.52	.40!
5!	FM!	-4.77!	.00!	5.67	5.10	!	.00	.84	.00! 248
!	RL!	4.33!	1.81!	8.10	5.10	!	.36	.53	.41!
!	RS!	9.37!	2.26!	16.21	10.20	!	.30	.58	.42!

SP	LO	MOMENT	SHEAR	ALLOWABLE	FORCES		UNITY	CHECKS	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	9.37!	-2.25!	16.21	10.20	!	.29	.58	.42!
!	LL!	4.36!	-1.80!	8.10	5.10	!	.35	.54	.41!
6!	FM!	-4.61!	.00!	5.67	5.10	!	.00	.81	.00! 266
!	RL!	4.54!	1.82!	8.10	5.10	!	.36	.56	.44!
!	RS!	9.59!	2.26!	16.21	10.20	!	.30	.59	.44!

JOB NAME: 193681

PAGE 5

LOADING COMBINATION -- DL+WL

022

SP!LO!MOMENT!		SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	

!LS!	9.59!	-2.29!	16.21	10.20	!	.30	.59	.44!		
!LL!	4.46!	-1.85!	8.10	5.10	!	.36	.55	.43!		
7!FM!	-4.99!	.00!	5.67	5.10	!	.00	.88	.00!	228	
!RL!	6.03!	1.99!	8.10	5.10	!	.39	.74	.71!		
!RS!	8.62!	2.21!	14.73	8.15	!	.36	.58	.47!		

SP!LO!MOMENT! SHEAR!			ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-

!LS!	8.62!	-2.14!	14.73	8.15	!	.35	.58	.46!
!LL!	3.86!	-1.70!	6.63	3.05	!	.56	.58	.65!
8!FM!	-4.11!	.00!	4.64	3.05	!	.00	.89	.00! 304
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!
!RS!	.14!	1.24!	6.63	3.05	!	.41	.02	.17!

SP!LO!MOMENT!		SHEAR!		ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-

	!LS!	.14!	-.23!	6.63	3.05	!	.07	.02	.01!
	!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
9!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00! 73
	!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!
	!RS!	.00!	.00!	.00	.00	!	.00	.00	.00!

LOADING COMBINATION -- DL+0.5LL+WL

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.00!	10.33	9.17	!	.00	.00	.00!	
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
1!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	802
!	RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!	RS!	-.03!	-.05!	10.33	9.17	!	.01	.00	.00!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	-.03!	.40!	10.33	9.17	!	.04	.00	.00!	
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
2!	FM!	1.39!	.00!	10.33	9.17	!	.00	.13	.13!	2153
!	RL!	1.51!	.27!	10.33	9.17	!	.03	.15	.02!	
!	RS!	2.17!	.27!	23.02	25.91	!	.01	.09	.01!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	2.17!	-.54!	23.02	25.91	!	.03	.09	.01!	
!	LL!	1.51!	-.53!	12.69	16.74	!	.03	.12	.02!	
3!	FM!	-2.28!	.00!	8.88	16.74	!	.00	.26	.00!	724
!	RL!	10.06!	1.14!	12.69	16.74	!	.07	.79	.63!	
!	RS!	5.41!	1.28!	20.80	21.84	!	.08	.26	.07!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	5.41!	-1.32!	20.80	21.84	!	.08	.26	.07!	
!	LL!	2.45!	-1.06!	8.10	5.10	!	.21	.30	.13!	
4!	FM!	-2.82!	.00!	5.67	5.10	!	.00	.50	.00!	418
!	RL!	2.60!	1.08!	8.10	5.10	!	.21	.32	.15!	
!	RS!	5.60!	1.34!	16.21	10.20	!	.18	.35	.15!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	5.60!	-1.34!	16.21	10.20	!	.17	.35	.15!	
!	LL!	2.61!	-1.07!	8.10	5.10	!	.21	.32	.15!	
5!	FM!	-2.77!	.00!	5.67	5.10	!	.00	.49	.00!	434
!	RL!	2.54!	1.06!	8.10	5.10	!	.21	.31	.14!	
!	RS!	5.51!	1.33!	16.21	10.20	!	.17	.34	.15!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	5.51!	-1.33!	16.21	10.20	!	.17	.34	.15!	
!	LL!	2.55!	-1.06!	8.10	5.10	!	.21	.31	.14!	
6!	FM!	-2.73!	.00!	5.67	5.10	!	.00	.48	.00!	446
!	RL!	2.68!	1.07!	8.10	5.10	!	.21	.33	.15!	
!	RS!	5.68!	1.34!	16.21	10.20	!	.18	.35	.15!	

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LOADING COMBINATION -- DL+0.5LL+WL

024

SP!LO!MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR BEND COMB!	-L/-
!LS!	5.68!	-1.36!	16.21	10.20	!	.18 .35 .15!	
!LL!	2.64!	-1.09!	8.10	5.10	!	.21 .33 .15!	
7!FM!	-2.95!	.00!	5.67	5.10	!	.00 .52 .00!	386
!RL!	3.56!	1.18!	8.10	5.10	!	.23 .44 .25!	
!RS!	5.09!	1.31!	14.73	8.15	!	.21 .35 .17!	

SP!LO!MOMENT!		SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL	
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	5.09!	-1.27!	14.73	8.15	!	.21	.35	.16!	
!LL!	2.28!	-1.00!	6.63	3.05	!	.33	.34	.23!	
8!FM!	-2.43!	.00!	4.64	3.05	!	.00	.52	.00!	515
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.08!	.73!	6.63	3.05	!	.24	.01	.06!	

SP!LO!MOMENT!		SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL	
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-

!LS!	.08!	-.13!	6.63	3.05	!	.04	.01	.00!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
9!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	123
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.00!	.00!	.00	.00	!	.00	.00	.00!	

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025

LOADING COMBINATION -- DL+LL+0.5WL

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	.00!	10.33	9.17	!	.00	.00	.00!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
1!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	644
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	-.28!	-.45!	10.33	9.17	!	.05	.03	.00!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-.28!	.34!	10.33	9.17	!	.04	.03	.00!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
2!FM!	-.12!	.00!	7.23	9.17	!	.00	.02	.00!	1530
!RL!	-2.50!	-1.22!	7.23	9.17	!	.13	.35	.14!	
!RS!	-6.40!	-1.92!	23.02	25.91	!	.10	.28	.09!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-6.40!	2.18!	23.02	25.91	!	.11	.28	.09!	
!LL!	-3.92!	1.86!	12.69	16.74	!	.11	.31	.11!	
3!FM!	4.17!	.00!	12.69	16.74	!	.00	.33	.33!	352
!RL!	9.25!	-.99!	12.69	16.74	!	.06	.73	.53!	
!RS!	-4.32!	-1.07!	20.80	21.84	!	.07	.21	.05!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-4.32!	.83!	20.80	21.84	!	.05	.21	.05!	
!LL!	-2.44!	.68!	7.26	5.10	!	.13	.34	.13!	
4!FM!	1.25!	.00!	8.10	5.10	!	.00	.15	.15!	1454
!RL!	-1.35!	-.57!	8.02	5.10	!	.11	.17	.04!	
!RS!	-2.96!	-.72!	16.21	10.20	!	.09	.18	.04!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-2.96!	.76!	16.21	10.20	!	.10	.18	.04!	
!LL!	-1.25!	.61!	8.10	5.10	!	.12	.15	.04!	
5!FM!	1.73!	.00!	8.10	5.10	!	.00	.21	.21!	652
!RL!	-1.53!	-.64!	8.03	5.10	!	.12	.19	.05!	
!RS!	-3.30!	-.79!	16.21	10.20	!	.10	.20	.05!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-3.30!	.78!	16.21	10.20	!	.10	.20	.05!	
!LL!	-1.56!	.62!	7.97	5.10	!	.12	.20	.05!	
6!FM!	1.56!	.00!	8.10	5.10	!	.00	.19	.19!	796
!RL!	-1.55!	-.62!	7.98	5.10	!	.12	.19	.05!	
!RS!	-3.29!	-.78!	16.21	10.20	!	.10	.20	.05!	

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LOADING COMBINATION -- DL+LL+0.5WL

026

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-3.29!	.79!	16.21	10.20	!	.10	.20	.05!	
!LL!	-1.52!	.64!	8.03	5.10	!	.12	.19	.05!	
7!FM!	1.73!	.00!	8.10	5.10	!	.00	.21	.21!	656
!RL!	-2.08!	-.69!	8.10	5.10	!	.13	.26	.08!	
!RS!	-2.98!	-.76!	14.73	8.15	!	.13	.20	.06!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-2.98!	.74!	14.73	8.15	!	.12	.20	.06!	
!LL!	-1.34!	.59!	6.60	3.05	!	.19	.20	.08!	
8!FM!	1.42!	.00!	6.63	3.05	!	.00	.21	.21!	886
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	-.05!	-.43!	6.63	3.05	!	.14	.01	.02!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-.05!	.08!	6.63	3.05	!	.03	.01	.00!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
9!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	213
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.00!	.00!	.00	.00	!	.00	.00	.00!	

*** EAVE STRUT DESIGN ***

027

JOB NUMBER : 193681
(FULL OPTIMIZATION)

*** GEOMETRIC DATA ***

BAY SPACING (FEET) : 8.5, 5@25., 20.
BAY SPACING (FEET) :
INSET LEFT (FEET) : 1.2500 INSET RIGHT (FEET) : 1.2500
EAVE EXTN LEFT (FT.) : .0000 EAVE EXTN RIGHT (FT.) : .0000
ROOF SLOPE : 1.000/12 HORIZONTAL SPACING (FT.) : 1.2500
EAVE STRUT DEPTH (INCH) : 8.00

TOP FLANGE BRACED AT 1.00 FEET

*** DESIGN CRITERIA ***

DEAD LOAD (PSF) : 2.000 LIVE LOAD (PSF): 30.000
WIND VELOCITY PRESSURE (q): 28.750 PSF SPECIAL WIND COEFF.: -1.800
MAX. COMBINED SHEAR AND BENDING UNITY CHECK : 1.030
MAX. SHEAR OR BENDING UNITY CHECK : 1.030
MAX. DEFLECTION LIMIT PER SPAN : L/100.

SPAN	LENGTH -FT-	SECTION NAME	AREA IN.SQ.	MOMENT INERTIA	WIND COEF	DL + WL (KLF)	DL + LL (KLF)
1	1.25	8ES16	1.058	10.94	-1.8000	-.0624	.0399
2	7.25	8ES16	1.058	10.94	-1.8000	-.0624	.0399
3	25.00	8ES12	1.883	19.14	-1.8000	-.0624	.0399
4	25.00	8ES12	1.883	19.14	-1.8000	-.0624	.0399
5	25.00	8ES12	1.883	19.14	-1.8000	-.0624	.0399
6	25.00	8ES12	1.883	19.14	-1.8000	-.0624	.0399
7	25.00	8ES12	1.883	19.14	-1.8000	-.0624	.0399
8	18.75	8ES12	1.883	19.14	-1.8000	-.0624	.0399
9	1.25	8ES12	1.883	19.14	-1.8000	-.0624	.0399

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***** DEAD + LIVE LOAD *****

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.00!	.00	.00	!	.00	.00	.00!	
1!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	-4088
	RS!	-.03!	.05!	5.37	2.14	!	.02	.01	.02!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	-.03!	.15!	5.37	2.14	!	.07	.01	.07!	
2!	FM!	.25!	.00!	5.37	2.14	!	.00	.05	.05!	-9999
	RS!	.00!	-.14!	5.37	2.14	!	.07	.00	.07!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.50!	11.36	19.15	!	.03	.00	.03!	
3!	FM!	3.11!	.00!	11.36	19.15	!	.00	.27	.27!	-483
	RS!	.00!	-.50!	11.36	19.15	!	.03	.00	.03!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.50!	11.36	19.15	!	.03	.00	.03!	
4!	FM!	3.11!	.00!	11.36	19.15	!	.00	.27	.27!	-483
	RS!	.00!	-.50!	11.36	19.15	!	.03	.00	.03!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.50!	11.36	19.15	!	.03	.00	.03!	
5!	FM!	3.11!	.00!	11.36	19.15	!	.00	.27	.27!	-483
	RS!	.00!	-.50!	11.36	19.15	!	.03	.00	.03!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.50!	11.36	19.15	!	.03	.00	.03!	
6!	FM!	3.11!	.00!	11.36	19.15	!	.00	.27	.27!	-483
	RS!	.00!	-.50!	11.36	19.15	!	.03	.00	.03!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY	CHECKS	!	DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.50!	11.36	19.15	!	.03	.00	.03!	
7!	FM!	3.11!	.00!	11.36	19.15	!	.00	.27	.27!	-483
	RS!	.00!	-.50!	11.36	19.15	!	.03	.00	.03!	

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**** DEAD + LIVE LOAD ****

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	.00!	.37!	11.36	19.15	!	.02	.00	.02!
8!	FM!	1.74!	.00!	11.36	19.15	!	.00	.15	.15!-1158
	RS!	-.03!	-.38!	11.37	19.15	!	.02	.00	.02!

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-.03!	-.05!	11.37	19.15	!	.00	.00	.00!
9!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00! -365
	RS!	.00!	.00!	.00	.00	!	.00	.00	.00!

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**** DEAD + WIND LOAD ****

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY CHECKS	!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	.00!	.00	.00 !	.00	.00	.00	.00!	
1!FM!	.00!	.00!	.00	.00 !	.00	.00	.00	.00!	2611
RS!	.05!	-.08!	7.16	2.86 !	.04	.01	.04!		
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY CHECKS	!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.05!	-.23!	7.16	2.86 !	.11	.01	.11!		
2!FM!	-.39!	.00!	6.51	2.86 !	.00	.06	.06!	7791	
RS!	.00!	.22!	7.16	2.86 !	.10	.00	.10!		
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY CHECKS	!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	-.78!	15.15	25.54 !	.04	.00	.04!		
3!FM!	-4.88!	.00!	6.07	25.54 !	.00	.80	.80!	308	
RS!	.00!	.78!	15.15	25.54 !	.04	.00	.04!		
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY CHECKS	!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	-.78!	15.15	25.54 !	.04	.00	.04!		
4!FM!	-4.88!	.00!	6.07	25.54 !	.00	.80	.80!	308	
RS!	.00!	.78!	15.15	25.54 !	.04	.00	.04!		
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY CHECKS	!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	-.78!	15.15	25.54 !	.04	.00	.04!		
5!FM!	-4.88!	.00!	6.07	25.54 !	.00	.80	.80!	308	
RS!	.00!	.78!	15.15	25.54 !	.04	.00	.04!		
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY CHECKS	!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	-.78!	15.15	25.54 !	.04	.00	.04!		
6!FM!	-4.88!	.00!	6.07	25.54 !	.00	.80	.80!	308	
RS!	.00!	.78!	15.15	25.54 !	.04	.00	.04!		
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE	FORCES	!	UNITY CHECKS	!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	-.78!	15.15	25.54 !	.04	.00	.04!		
7!FM!	-4.88!	.00!	6.07	25.54 !	.00	.80	.80!	308	
RS!	.00!	.78!	15.15	25.54 !	.04	.00	.04!		

JOB NAME: 193681

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**** DEAD + WIND LOAD ****

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	-.58!	15.15	25.54	!	.03	.00	.03!	
8!FM!	-2.72!	.00!	6.93	25.54	!	.00	.39	.39!	739
RS!	.05!	.59!	15.15	25.54	!	.03	.00	.03!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.05!	.08!	15.16	25.54	!	.00	.00	.00!	
9!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	233
RS!	.00!	.00!	.00	.00	!	.00	.00	.00!	

*** PURLIN DESIGN ***

JOB NUMBER : 193681A1 ~~(BAY 1 AND 2)~~
 (OPTIMIZE LONG LAPS ONLY) ~~(2 BAY CONDITION)~~

*** GEOMETRIC DATA ***

BAY SPACING (FEET) : 8.5, 26.25
 INSET LEFT (FEET) : 1.250 INSET RIGHT (FEET) : 1.250
 PURLIN EXTN LEFT (FT.): .00000 PURLIN EXTN RIGHT (FT.) : .00000
 ROOF SLOPE : 2.250/12 HORIZONTAL SPACING (FT.): 2.50000
 PURLIN DEPTH (INCH) : 8.00

TOP FLANGE BRACED AT 1.00 FEET

*** DESIGN CRITERIA ***

DEAD LOAD (PSF) : 2.00 LIVE LOAD (PSF): 30.00
 WIND VELOCITY PRESSURE (q): 28.750 PSF SPECIAL WIND COEFF.: -1.30
 MAX. COMBINED SHEAR AND BENDING UNITY CHECK : 1.035
 MAX. SHEAR OR BENDING UNITY CHECK : 1.035
 MAX. DEFLECTION LIMIT PER SPAN : L/180.

*** LOADING COMBINATION ***

1. DL+LL
2. DL+WL
3. DL+0.5LL+WL
4. DL+LL+0.5WL

*** SPECIAL LOADS ***

SPANS	COND.	DIR	TYPE	STARTING LOCATION	LOAD LENGTH.	STARTING LOAD	ENDING LOAD
1	LL	Y	VARY	0.	1.25	-.3075	-.2925
2	LL	Y	VARY	0.	7.25	-.2925	-.205
3	LL	Y	VARY	0.	16.5	-.205	0.

*** CRITICAL ROW SUMMARY ***

SPAN #	ANALYSIS LENGTH	LAP LEFT	SIZE OF SECTION	LAP RIGHT	WIND COEF	DL + WL (KLF)	DL + LL (KLF)
1	1.2500	.0000	8Z13	.0000	-1.3000	-.0902	.0786
2	7.2500	.0000	8Z13	2.4791	-1.3000	-.0902	.0786
3	25.0000	1.2291	8Z12	.0000	-1.3000	-.0902	.0786
4	1.2500	.0000	8Z12	.0000	-1.3000	-.0902	.0786

*** FLANGE BRACE INFORMATION ***

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SPAN NO	LENGTH (FT.)	OUTSIDE BRACES	INSIDE BRACES
1	1.250	2@1.0000	1@1.2500
2	7.250	8@1.0000	1@7.2500
3	25.000	25@1.0000	1@25.0000
4	1.250	2@1.0000	1@1.2500

JOB NAME: 193681A1

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LOADING COMBINATION -- DL+LL

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#	K-FT	KIP	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB	-L/-
!	LS	.00	.00	7.75	6.88	.00	.00	.00	
!	LL	.00	.00	.00	.00	.00	.00	.00	
1	FM	.00	.00	.00	.00	.00	.00	.00	356
!	RL	.00	.00	.00	.00	.00	.00	.00	
!	RS	-.30	-.47	7.75	6.88	.07	.04	.01	

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#	K-FT	KIP	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB	-L/-
!	LS	-.30	.05	7.75	6.88	.01	.04	.00	
!	LL	.00	.00	.00	.00	.00	.00	.00	
2	FM	-.29	.00	5.42	6.88	.00	.05	.00	887
!	RL	-4.08	-1.59	5.42	6.88	.23	.75	.62	
!	RS	-8.94	-2.33	17.27	19.43	.12	.52	.28	

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#	K-FT	KIP	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB	-L/-
!	LS	-8.94	2.66	17.27	19.43	.14	.52	.29	
!	LL	-5.88	2.32	9.52	12.55	.18	.62	.42	
3	FM	6.19	.00	9.52	12.55	.00	.65	.65	200
!	RL	.00	.00	.00	.00	.00	.00	.00	
!	RS	-.06	-1.00	9.52	12.55	.08	.01	.01	

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#	K-FT	KIP	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB	-L/-
!	LS	-.06	.10	9.52	12.55	.01	.01	.00	
!	LL	.00	.00	.00	.00	.00	.00	.00	
4	FM	.00	.00	.00	.00	.00	.00	.00	59
!	RL	.00	.00	.00	.00	.00	.00	.00	
!	RS	.00	.00	.00	.00	.00	.00	.00	

JOB NAME: 193681A1

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035

LOADING COMBINATION -- DL+WL

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	.00!	10.33	9.17	!	.00	.00	.00!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
1!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	438
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.07!	.11!	10.33	9.17	!	.01	.01	.00!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.07!	.40!	10.33	9.17	!	.04	.01	.00!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
2!FM!	1.04!	.00!	10.33	9.17	!	.00	.10	.10!	1140
!RL!	2.99!	.83!	10.33	9.17	!	.09	.29	.09!	
!RS!	5.32!	1.05!	23.02	25.91	!	.05	.23	.06!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	5.32!	-1.34!	23.02	25.91	!	.07	.23	.06!	
!LL!	3.74!	-1.23!	12.69	16.74	!	.07	.29	.09!	
3!FM!	-4.59!	.00!	8.88	16.74	!	.00	.52	.00!	280
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.07!	.92!	12.69	16.74	!	.05	.01	.00!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.07!	-.11!	12.69	16.74	!	.01	.01	.00!	
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
4!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	77
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.00!	.00!	.00	.00	!	.00	.00	.00!	

LOADING COMBINATION -- DL+0.5LL+WL

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.00!	10.33	9.17	.00	.00	.00!	
!	LL!	.00!	.00!	.00	.00	.00	.00	.00!	
1!	FM!	.00!	.00!	.00	.00	.00	.00	.00!	1062
!	RL!	.00!	.00!	.00	.00	.00	.00	.00!	
!	RS!	-.08!	-.12!	10.33	9.17	.01	.01	.00!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	-.08!	.43!	10.33	9.17	.05	.01	.00!	
!	LL!	.00!	.00!	.00	.00	.00	.00	.00!	
2!	FM!	1.06!	.00!	10.33	9.17	.00	.10	.10!	2963
!	RL!	1.03!	.06!	10.33	9.17	.01	.10	.01!	
!	RS!	.99!	-.08!	23.02	25.91	.00	.04	.00!	

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	.99!	-.04!	23.02	25.91	.00	.04	.00!	
!	LL!	.90!	-.10!	12.69	16.74	.01	.07	.01!	
3!	FM!	-1.79!	.00!	8.88	16.74	.00	.20	.00!	863
!	RL!	.00!	.00!	.00	.00	.00	.00	.00!	
!	RS!	.04!	.44!	12.69	16.74	.03	.00	.00!	

!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	.04!	-.07!	12.69	16.74	.00	.00	.00!	
!	LL!	.00!	.00!	.00	.00	.00	.00	.00!	
4!	FM!	.00!	.00!	.00	.00	.00	.00	.00!	208
!	RL!	.00!	.00!	.00	.00	.00	.00	.00!	
!	RS!	.00!	.00!	.00	.00	.00	.00	.00!	

JOB NAME: 193681A1

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LOADING COMBINATION -- DL+LL+0.5WL

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	.00!	.00!	10.33	9.17	!	.00	.00	.00!
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
1!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00! 624
!	RL!	.00!	.00!	.00	.00	!	.00	.00	.00!
!	RS!	-.26!	-.41!	10.33	9.17	!	.05	.03	.00!

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-.26!	.26!	10.33	9.17	!	.03	.03	.00!
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
2!	FM!	-.16!	.00!	7.23	9.17	!	.00	.02	.00! 1504
!	RL!	-2.50!	-1.15!	7.23	9.17	!	.13	.35	.14!
!	RS!	-6.14!	-1.77!	23.02	25.91	!	.09	.27	.08!

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-6.14!	1.95!	23.02	25.91	!	.10	.27	.08!
!	LL!	-3.91!	1.67!	12.69	16.74	!	.10	.31	.11!
3!	FM!	3.87!	.00!	12.69	16.74	!	.00	.31	.31! 320
!	RL!	.00!	.00!	.00	.00	!	.00	.00	.00!
!	RS!	-.02!	-.52!	12.69	16.74	!	.03	.00	.00!

SP	LO	MOMENT	SHEAR	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB! -L/-
!	LS!	-.02!	.04!	12.69	16.74	!	.00	.00	.00!
!	LL!	.00!	.00!	.00	.00	!	.00	.00	.00!
4!	FM!	.00!	.00!	.00	.00	!	.00	.00	.00! 99
!	RL!	.00!	.00!	.00	.00	!	.00	.00	.00!
!	RS!	.00!	.00!	.00	.00	!	.00	.00	.00!

Design Thk.: 16 ga= 0.059, 15 ga= 0.065, 14 ga= 0.070, 13 ga= 0.085, 12 ga= 0.10

MIDWEST METALLIC

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*** EAVE STRUT DESIGN ***

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JOB NUMBER : 193681A1

(FULL OPTIMIZATION)

~~BAY 1 AND 2~~

~~(2-BAY CONDITION)~~

*** GEOMETRIC DATA ***

BAY SPACING (FEET) : 8.5, 26.25
BAY SPACING (FEET) :
INSET LEFT (FEET) : 1.2500 INSET RIGHT (FEET) : 1.2500
EAVE EXTN LEFT (FT.) : .0000 EAVE EXTN RIGHT (FT.) : .0000
ROOF SLOPE : 1.000/12 HORIZONTAL SPACING (FT.) : 1.2500
EAVE STRUT DEPTH (INCH) : 8.00

TOP FLANGE BRACED AT 1.00 FEET

*** DESIGN CRITERIA ***

DEAD LOAD (PSF) : 2.000 LIVE LOAD (PSF): 58.000
WIND VELOCITY PRESSURE (q): 28.750 PSF SPECIAL WIND COEFF.: -1.800
MAX. COMBINED SHEAR AND BENDING UNITY CHECK : 1.030
MAX. SHEAR OR BENDING UNITY CHECK : 1.030
MAX. DEFLECTION LIMIT PER SPAN : L/100.

SPAN	LENGTH -FT-	SECTION NAME	AREA IN.SQ.	MOMENT INERTIA	WIND COEF	DL + WL (KLF)	DL + LL (KLF)
1	1.25	8ES16	1.058	10.94	-1.8000	-.0624	.0747
2	7.25	8ES16	1.058	10.94	-1.8000	-.0624	.0747
3	25.00	8ES12	1.883	19.14	-1.8000	-.0624	.0747
4	1.25	8ES12	1.883	19.14	-1.8000	-.0624	.0747

JOB NAME: 193681A1

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**** DEAD + LIVE LOAD ****

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	.00!	.00	.00	!	.00	.00	.00!	
1!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	-2180
RS!	-.06!	.09!	5.37	2.14	!	.04	.01	.04!	
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-.06!	.28!	5.37	2.14	!	.13	.01	.13!	
2!FM!	.46!	.00!	5.37	2.14	!	.00	.09	.09!	-6507
RS!	.00!	-.26!	5.37	2.14	!	.12	.00	.12!	
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	.00!	.93!	11.37	19.15	!	.05	.00	.05!	
3!FM!	5.81!	.00!	11.36	19.15	!	.00	.51	.51!	-259
RS!	-.06!	-.94!	11.38	19.15	!	.05	.01	.05!	
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-
!LS!	-.06!	-.09!	11.37	19.15	!	.00	.01	.00!	
4!FM!	.00!	.00!	.00	.00	!	.00	.00	.00!	-81
RS!	.00!	.00!	.00	.00	!	.00	.00	.00!	

JOB NAME: 193681A1

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**** DEAD + WIND LOAD ****

SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	.00!	.00	.00	.00	.00	.00!	
1!	FM!	.00!	.00!	.00	.00	.00	.00	.00!	2611
	RS!	.05!	-.08!	7.16	2.86	.04	.01	.04!	
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	.05!	-.23!	7.16	2.86	.11	.01	.11!	
2!	FM!	-.39!	.00!	6.51	2.86	.00	.06	.06!	7791
	RS!	.00!	.22!	7.16	2.86	.10	.00	.10!	
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	.00!	-.78!	15.17	25.54	.04	.00	.04!	
3!	FM!	-4.85!	.00!	6.07	25.54	.00	.80	.80!	310
	RS!	.05!	.78!	15.17	25.54	.04	.00	.04!	
SP!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		UNITY CHECKS			DEFL
!	#!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	SHEAR	BEND	COMB!	-L/-
!	LS!	.05!	.08!	15.16	25.54	.00	.00	.00!	
4!	FM!	.00!	.00!	.00	.00	.00	.00	.00!	97
	RS!	.00!	.00!	.00	.00	.00	.00	.00!	

Design Thk.: 16 ga= 0.059, 15 ga= 0.065, 14 ga= 0.070, 13 ga= 0.085, 12 ga= 0.10

MIDWEST METALLIC

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*** GIRT DESIGN ***
*** FRONT SIDEWALL ***

JOB NUMBER : 193681
(FULL OPTIMIZATION)

*** GEOMETRIC DATA ***

BAY SPACING (FEET) : 8.5, 5@25., 20.
INSET LEFT (FEET) : 1.2500 INSET RIGHT (FEET) : 1.2500
ROOF SLOPE : 2.25/12 MAX. TRIBUTARY SPACING (FT.) : 4.0000
GIRT DEPTH (INCH) : 8.00 GIRT CONDITION : BY-FRAME

OUTSIDE FLANGE BRACED AT 1.00 FEET

*** DESIGN CRITERIA ***

WIND VELOCITY PRESSURE (q): -28.75 PSF
WIND LOAD PRESSURE COEFF. : .90 WIND LOAD SUCTION COEFF. :- 1.30
MAX. COMBINED SHEAR AND BENDING UNITY CHECK : 1.03
MAX. SHEAR OR BENDING UNITY CHECK : 1.03
MAX. DEFLECTION LIMIT PER SPAN : L/ 90.

SPAN NO.	BAY SPACING	MAX TRIB SPA	PRESSURE COEF	SUCTION COEF	PRESSURE (KLF)	SUCTION (KLF)
1	7.2500	4.0000	.9000	-1.3000	.1035	-.1495
2	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
3	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
4	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
5	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
6	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
7	18.7500	4.0000	.9000	-1.3000	.1035	-.1495

*** LOADING COMBINATION ***

1. WLP
2. WLS

*** CRITICAL ROW SUMMARY ***

SPAN #	ANALYSIS LENGTH	LAP LEFT	SIZE OF SECTION	LAP RIGHT
1	7.2500	.0000	8Z16	1.2291
2	25.0000	1.2291	8Z16	2.4791
3	25.0000	2.4791	8Z16	1.2291
4	25.0000	1.2291	8Z16	1.2291
5	25.0000	1.2291	8Z16	2.4791
6	25.0000	2.4791	8Z16	1.2291
7	18.7500	1.2291	8Z16	.0000

*** FLANGE BRACE INFORMATION ***

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SPAN NO	LENGTH (FT.)	OUTSIDE BRACES	INSIDE BRACES
1	7.250	9@1.0000	1@8.5000
2	25.000	25@1.0000	1@25.0000
3	25.000	25@1.0000	1@25.0000
4	25.000	25@1.0000	1@25.0000
5	25.000	25@1.0000	1@25.0000
6	25.000	25@1.0000	1@25.0000
7	18.750	20@1.0000	1@20.0000

JOB NAME: 193681

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LOADING COMBINATION -- WLP

!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	.00!	-.21!	5.84	3.05	!	.07	.00	.00!		
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!		
1!FM!	-.35!	.00!	4.64	3.05	!	.00	.08	.00!	1140	
!RL!	-3.11!	-.83!	4.64	3.05	!	.27	.67	.52!		
!RS!	-4.21!	-.96!	13.25	6.09	!	.21	.32	.14!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	-4.21!	1.23!	13.25	6.09	!	.27	.32	.17!		
!LL!	-2.77!	1.11!	6.63	3.05	!	.36	.42	.31!		
2!FM!	3.15!	.00!	6.63	3.05	!	.00	.47	.47!	285	
!RL!	-2.67!	-1.10!	6.55	3.05	!	.36	.41	.30!		
!RS!	-5.71!	-1.35!	13.25	6.09	!	.30	.43	.27!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	-5.71!	1.31!	13.25	6.09	!	.29	.43	.27!		
!LL!	-2.78!	1.05!	6.45	3.05	!	.35	.43	.30!		
3!FM!	2.58!	.00!	6.63	3.05	!	.00	.39	.39!	413	
!RL!	-3.82!	-1.15!	6.55	3.05	!	.38	.58	.48!		
!RS!	-5.31!	-1.28!	13.25	6.09	!	.28	.40	.24!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	-5.31!	1.29!	13.25	6.09	!	.28	.40	.24!		
!LL!	-3.80!	1.16!	6.58	3.05	!	.38	.58	.48!		
4!FM!	2.74!	.00!	6.63	3.05	!	.00	.41	.41!	366	
!RL!	-3.87!	-1.17!	6.56	3.05	!	.38	.59	.50!		
!RS!	-5.39!	-1.30!	13.25	6.09	!	.28	.41	.25!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	-5.39!	1.29!	13.25	6.09	!	.28	.41	.24!		
!LL!	-3.88!	1.16!	6.54	3.05	!	.38	.59	.50!		
5!FM!	2.65!	.00!	6.63	3.05	!	.00	.40	.40!	390	
!RL!	-2.59!	-1.04!	6.52	3.05	!	.34	.40	.27!		
!RS!	-5.49!	-1.30!	13.25	6.09	!	.28	.41	.25!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	-5.49!	1.31!	13.25	6.09	!	.29	.41	.25!		
!LL!	-2.55!	1.06!	6.55	3.05	!	.35	.39	.27!		
6!FM!	2.84!	.00!	6.63	3.05	!	.00	.43	.43!	340	
!RL!	-3.51!	-1.15!	6.63	3.05	!	.38	.53	.42!		
!RS!	-5.00!	-1.27!	13.25	6.09	!	.28	.38	.22!		

JOB NAME: 193681

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LOADING COMBINATION -- WLP

!	LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
				MOMENT (Ma)	SHEAR (Va)		SHEAR	BEND	COMB!		
!	#!	K-FT!	KIP !			!					-L/-
!	LS!	-5.00!	1.24!	13.25	6.09	!	.27	.38	.22!		
!	LL!	-3.56!	1.11!	6.59	3.05	!	.36	.54	.42!		
7!	FM!	2.39!	.00!	6.63	3.05	!	.00	.36	.36!	525	
!	RL!	.00!	.00!	.00	.00	!	.00	.00	.00!		
!	RS!	.00!	-.70!	6.63	3.05	!	.23	.00	.05!		

JOB NAME: 193681

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LOADING COMBINATION -- WLS

!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	.00!	.30!	6.63	3.05	!	.10	.00	.01!		
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!		
1!FM!	.50!	.00!	6.63	3.05	!	.00	.08	.08!	789	
!RL!	4.50!	1.20!	6.63	3.05	!	.39	.68	.61!		
!RS!	6.08!	1.38!	13.25	6.09	!	.30	.46	.30!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	6.08!	-1.78!	13.25	6.09	!	.39	.46	.36!		
!LL!	4.00!	-1.60!	6.63	3.05	!	.52	.60	.64!		
2!FM!	-4.54!	.00!	4.64	3.05	!	.00	.98	.00!	197	
!RL!	3.85!	1.58!	6.63	3.05	!	.52	.58	.61!		
!RS!	8.24!	1.96!	13.25	6.09	!	.43	.62	.57!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	8.24!	-1.89!	13.25	6.09	!	.41	.62	.56!		
!LL!	4.01!	-1.52!	6.63	3.05	!	.50	.61	.62!		
3!FM!	-3.72!	.00!	4.64	3.05	!	.00	.80	.00!	286	
!RL!	5.52!	1.66!	6.63	3.05	!	.55	.83	.99!		
!RS!	7.67!	1.85!	13.25	6.09	!	.40	.58	.50!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	7.67!	-1.86!	13.25	6.09	!	.41	.58	.50!		
!LL!	5.50!	-1.68!	6.63	3.05	!	.55	.83	.99!		
4!FM!	-3.95!	.00!	4.64	3.05	!	.00	.85	.00!	253	
!RL!	5.59!	1.69!	6.63	3.05	!	.55	.84	1.02!		
!RS!	7.78!	1.87!	13.25	6.09	!	.41	.59	.51!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	7.78!	-1.86!	13.25	6.09	!	.41	.59	.51!		
!LL!	5.60!	-1.68!	6.63	3.05	!	.55	.85	1.02!		
5!FM!	-3.83!	.00!	4.64	3.05	!	.00	.82	.00!	270	
!RL!	3.74!	1.50!	6.63	3.05	!	.49	.56	.56!		
!RS!	7.93!	1.87!	13.25	6.09	!	.41	.60	.53!		

SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-	
!LS!	7.93!	-1.90!	13.25	6.09	!	.42	.60	.53!		
!LL!	3.69!	-1.53!	6.63	3.05	!	.50	.56	.56!		
6!FM!	-4.11!	.00!	4.64	3.05	!	.00	.89	.00!	235	
!RL!	5.08!	1.66!	6.63	3.05	!	.54	.77	.88!		
!RS!	7.22!	1.84!	13.25	6.09	!	.40	.55	.46!		

JOB NAME: 193681

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LOADING COMBINATION -- WLS

! LO !	! # !	! K-FT !	! SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			! DEFL
				MOMENT (Ma)	SHEAR (Va)		SHEAR	BEND	COMB !	
			KIP !							-L/-
!LS!		7.22!	-1.79!	13.25	6.09	!	.39	.55	.45!	
!LL!		5.14!	-1.60!	6.63	3.05	!	.53	.78	.88!	
7!FM!		-3.45!	.00!	4.64	3.05	!	.00	.74	.00!	364
!RL!		.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!		.00!	1.02!	2.52	3.05	!	.33	.00	.11!	

*** GIRT DESIGN ***
 *** BACK SIDEWALL ***

047

JOB NUMBER : 193681
 (FULL OPTIMIZATION)

*** GEOMETRIC DATA ***

BAY SPACING (FEET) : 8.5, 5@25., 20.
 INSET LEFT (FEET) : 1.2500 INSET RIGHT (FEET) : 1.2500
 ROOF SLOPE : .00/12 MAX. TRIBUTARY SPACING (FT.) : 4.0000
 GIRT DEPTH (INCH) : 8.00 GIRT CONDITION : BY-FRAME

OUTSIDE FLANGE BRACED AT 1.00 FEET

*** DESIGN CRITERIA ***

WIND VELOCITY PRESSURE (q): -28.75 PSF
 WIND LOAD PRESSURE COEFF. : .90 WIND LOAD SUCTION COEFF. :- 1.30
 MAX. COMBINED SHEAR AND BENDING UNITY CHECK : 1.03
 MAX. SHEAR OR BENDING UNITY CHECK : 1.03
 MAX. DEFLECTION LIMIT PER SPAN : L/ 90.

SPAN NO.	BAY SPACING	MAX TRIB SPA	PRESSURE COEF	SUCTION COEF	PRESSURE (KLF)	SUCTION (KLF)
1	7.2500	4.0000	.9000	-1.3000	.1035	-.1495
2	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
3	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
4	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
5	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
6	25.0000	4.0000	.9000	-1.3000	.1035	-.1495
7	18.7500	4.0000	.9000	-1.3000	.1035	-.1495

*** LOADING COMBINATION ***

1. WLP
2. WLS

*** CRITICAL ROW SUMMARY ***

SPAN #	ANALYSIS LENGTH	LAP LEFT	SIZE OF SECTION	LAP RIGHT
1	7.2500	.0000	8Z16	1.2291
2	25.0000	1.2291	8Z16	2.4791
3	25.0000	2.4791	8Z16	1.2291
4	25.0000	1.2291	8Z16	1.2291
5	25.0000	1.2291	8Z16	2.4791
6	25.0000	2.4791	8Z16	1.2291
7	18.7500	1.2291	8Z16	.0000

*** FLANGE BRACE INFORMATION ***

SPAN NO	LENGTH (FT.)	OUTSIDE BRACES	INSIDE BRACES
1	7.250	9@1.0000	1@8.5000
2	25.000	25@1.0000	1@25.0000
3	25.000	25@1.0000	1@25.0000
4	25.000	25@1.0000	1@25.0000
5	25.000	25@1.0000	1@25.0000
6	25.000	25@1.0000	1@25.0000
7	18.750	20@1.0000	1@20.0000

JOB NAME: 193681

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LOADING COMBINATION -- WLP

! LO !	MOMENT !	SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
! LS !	.00 !	-.21 !	5.84	3.05	!	.07	.00	.00 !		
! LL !	.00 !	.00 !	.00	.00	!	.00	.00	.00 !		
1 ! FM !	-.35 !	.00 !	4.64	3.05	!	.00	.08	.00 !	1140	
! RL !	-3.11 !	-.83 !	4.64	3.05	!	.27	.67	.52 !		
! RS !	-4.21 !	-.96 !	13.25	6.09	!	.21	.32	.14 !		
SP ! LO !	MOMENT !	SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
! LS !	-4.21 !	1.23 !	13.25	6.09	!	.27	.32	.17 !		
! LL !	-2.77 !	1.11 !	6.63	3.05	!	.36	.42	.31 !		
2 ! FM !	3.15 !	.00 !	6.63	3.05	!	.00	.47	.47 !	285	
! RL !	-2.67 !	-1.10 !	6.55	3.05	!	.36	.41	.30 !		
! RS !	-5.71 !	-1.35 !	13.25	6.09	!	.30	.43	.27 !		
SP ! LO !	MOMENT !	SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
! LS !	-5.71 !	1.31 !	13.25	6.09	!	.29	.43	.27 !		
! LL !	-2.78 !	1.05 !	6.45	3.05	!	.35	.43	.30 !		
3 ! FM !	2.58 !	.00 !	6.63	3.05	!	.00	.39	.39 !	413	
! RL !	-3.82 !	-1.15 !	6.55	3.05	!	.38	.58	.48 !		
! RS !	-5.31 !	-1.28 !	13.25	6.09	!	.28	.40	.24 !		
SP ! LO !	MOMENT !	SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
! LS !	-5.31 !	1.29 !	13.25	6.09	!	.28	.40	.24 !		
! LL !	-3.80 !	1.16 !	6.58	3.05	!	.38	.58	.48 !		
4 ! FM !	2.74 !	.00 !	6.63	3.05	!	.00	.41	.41 !	366	
! RL !	-3.87 !	-1.17 !	6.56	3.05	!	.38	.59	.50 !		
! RS !	-5.39 !	-1.30 !	13.25	6.09	!	.28	.41	.25 !		
SP ! LO !	MOMENT !	SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
! LS !	-5.39 !	1.29 !	13.25	6.09	!	.28	.41	.24 !		
! LL !	-3.88 !	1.16 !	6.54	3.05	!	.38	.59	.50 !		
5 ! FM !	2.65 !	.00 !	6.63	3.05	!	.00	.40	.40 !	390	
! RL !	-2.59 !	-1.04 !	6.52	3.05	!	.34	.40	.27 !		
! RS !	-5.49 !	-1.30 !	13.25	6.09	!	.28	.41	.25 !		
SP ! LO !	MOMENT !	SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
! LS !	-5.49 !	1.31 !	13.25	6.09	!	.29	.41	.25 !		
! LL !	-2.55 !	1.06 !	6.55	3.05	!	.35	.39	.27 !		
6 ! FM !	2.84 !	.00 !	6.63	3.05	!	.00	.43	.43 !	340	
! RL !	-3.51 !	-1.15 !	6.63	3.05	!	.38	.53	.42 !		
! RS !	-5.00 !	-1.27 !	13.25	6.09	!	.28	.38	.22 !		

JOB NAME: 193681

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LOADING COMBINATION -- WLP

!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			! DEFL
! #!	K-FT!	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB!	-L/-

!LS!	-5.00!	1.24!	13.25	6.09	!	.27	.38	.22!	
!LL!	-3.56!	1.11!	6.59	3.05	!	.36	.54	.42!	
7!FM!	2.39!	.00!	6.63	3.05	!	.00	.36	.36!	525
!RL!	.00!	.00!	.00	.00	!	.00	.00	.00!	
!RS!	.00!	-.70!	6.63	3.05	!	.23	.00	.05!	

JOB NAME: 193681

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LOADING COMBINATION -- WLS

! LO !	MOMENT !	SHEAR !	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
!LS!	.00!	.30!	6.63	3.05	!	.10	.00	.01!		
!LL!	.00!	.00!	.00	.00	!	.00	.00	.00!		
1!FM!	.50!	.00!	6.63	3.05	!	.00	.08	.08!	789	
!RL!	4.50!	1.20!	6.63	3.05	!	.39	.68	.61!		
!RS!	6.08!	1.38!	13.25	6.09	!	.30	.46	.30!		
SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
!LS!	6.08!	-1.78!	13.25	6.09	!	.39	.46	.36!		
!LL!	4.00!	-1.60!	6.63	3.05	!	.52	.60	.64!		
2!FM!	-4.54!	.00!	4.64	3.05	!	.00	.98	.00!	197	
!RL!	3.85!	1.58!	6.63	3.05	!	.52	.58	.61!		
!RS!	8.24!	1.96!	13.25	6.09	!	.43	.62	.57!		
SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
!LS!	8.24!	-1.89!	13.25	6.09	!	.41	.62	.56!		
!LL!	4.01!	-1.52!	6.63	3.05	!	.50	.61	.62!		
3!FM!	-3.72!	.00!	4.64	3.05	!	.00	.80	.00!	286	
!RL!	5.52!	1.66!	6.63	3.05	!	.55	.83	.99!		
!RS!	7.67!	1.85!	13.25	6.09	!	.40	.58	.50!		
SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
!LS!	7.67!	-1.86!	13.25	6.09	!	.41	.58	.50!		
!LL!	5.50!	-1.68!	6.63	3.05	!	.55	.83	.99!		
4!FM!	-3.95!	.00!	4.64	3.05	!	.00	.85	.00!	253	
!RL!	5.59!	1.69!	6.63	3.05	!	.55	.84	1.02!		
!RS!	7.78!	1.87!	13.25	6.09	!	.41	.59	.51!		
SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
!LS!	7.78!	-1.86!	13.25	6.09	!	.41	.59	.51!		
!LL!	5.60!	-1.68!	6.63	3.05	!	.55	.85	1.02!		
5!FM!	-3.83!	.00!	4.64	3.05	!	.00	.82	.00!	270	
!RL!	3.74!	1.50!	6.63	3.05	!	.49	.56	.56!		
!RS!	7.93!	1.87!	13.25	6.09	!	.41	.60	.53!		
SP!LO!	MOMENT!	SHEAR!	ALLOWABLE FORCES		!	UNITY CHECKS			!	DEFL
! # !	K-FT !	KIP !	MOMENT (Ma)	SHEAR (Va)	!	SHEAR	BEND	COMB !	-L/-	
!LS!	7.93!	-1.90!	13.25	6.09	!	.42	.60	.53!		
!LL!	3.69!	-1.53!	6.63	3.05	!	.50	.56	.56!		
6!FM!	-4.11!	.00!	4.64	3.05	!	.00	.89	.00!	235	
!RL!	5.08!	1.66!	6.63	3.05	!	.54	.77	.88!		
!RS!	7.22!	1.84!	13.25	6.09	!	.40	.55	.46!		

JOB NAME: 193681

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LOADING COMBINATION -- WLS

! LO ! ! # !	! MOMENT ! K-FT !	! SHEAR ! KIP !	ALLOWABLE FORCES		!	UNITY CHECKS			! DEFL -L/-
			MOMENT (Ma)	SHEAR (Va)		SHEAR	BEND	COMB !	
! LS !	7.22 !	-1.79 !	13.25	6.09	!	.39	.55	.45 !	
! LL !	5.14 !	-1.60 !	6.63	3.05	!	.53	.78	.88 !	
7 ! FM !	-3.45 !	.00 !	4.64	3.05	!	.00	.74	.00 !	364
! RL !	.00 !	.00 !	.00	.00	!	.00	.00	.00 !	
! RS !	.00 !	1.02 !	2.52	3.05	!	.33	.00	.11 !	

JOB NUMBER : 193681
(FULL OPTIMIZATION)

*** GEOMETRIC DATA ***

RAVINE SPACING (FEET) : 8.50,5@25.00,20.00
REDUCED TIER SPACES (FT) : 4@20.00
FRONT EAVE HEIGHT (FEET) : 12.0000 BACK EAVE HEIGHT (FEET) : 27.0000
FRONT SIDE ROOF SLOPE : 2.2500/12 FRONT SIDE TO RIDGE : 80.0000

*** BRACING DATA ***

RF BRACING TYPE : CABLE	# BAYS : 2	LOCATION : 2,6
FS BRACING TYPE : CABLE	# BAYS : 2	LOCATION : 2,6
BS BRACING TYPE : CABLE	# BAYS : 2	LOCATION : 2,6
LE BRACING TYPE : DIAPHRAGM	# BAYS :	LOCATION :
RE BRACING TYPE : DIAPHRAGM	# BAYS :	LOCATION :

*** DESIGN CRITERIA ***

WIND VELOCITY PRESS (q) : 28.7500 PSF	EDGE STRIP WIDTH (FEET) : 20.000
INTERIOR COEFFICIENT, G _{CpR} : 1.3000	EDGE STRIP COEFFICIENT, G _{CpX} : 1.3000
MAXIMUM UNITY CHECK RATIO: 1.0345	MAX. HORIZONTAL DEFLECTION : .0000

*** LOADING COMBINATIONS ***

1. WIND LOAD

*** BRACING RESULTS ***

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TIER	TIER	'C'	BRACING - SIZE / TENSION			
NO.	SPACING	BAY #2	BAY #6	BAY #0	BAY #0	BAY #0
1	20.0000	5/16" DIA 5.99	5/16" DIA 5.99			
2	20.0000	1/4" DIA 2.22	1/4" DIA 2.22			
3	20.0000	1/4" DIA 2.45	1/4" DIA 2.45			
4 (BS)	20.0000	3/8" DIA 8.01	3/8" DIA 8.01			

COL	P	STRUTS - TYPE / FORCE			
#	FORCE	BAY #2	BAY #6	BAY #0	BAY #0
FS EAVE	2.4177	CL - 23 7.10	CL - 23 5.89		
2	5.8866	CL - 4 7.62	CL - 4 4.68		
3	3.4689	CL - 1 3.47	CL - 1 1.73		
4	3.8193	CL - 1 3.82	CL - 1 1.91		
5	8.6897	STRUT ZEE 10.60	STRUT ZEE 6.25		
BS EAVE	4.8704	STRUT ZEE 11.12	STRUT ZEE 8.69		

*** FRONTSIDE ***

		TIER	'C'	BRACING - SIZE / TENSION			
WALL	SPACING		BAY #2	BAY #6	BAY #0	BAY #0	BAY #0
ES	12.0000	5/16" DIA	5/16" DIA				
		6.38	6.38				

*** BACKSIDE ***

		TIER	'C'	BRACING - SIZE / TENSION			
WALL	SPACING		BAY #2	BAY #6	BAY #0	BAY #0	BAY #0
BS	27.0000	1/2" DIA	1/2" DIA				
		12.37	12.37				

*** LEFT ENDWALL ***

LEFT ENDWALL IS MAINFRAME
NO DIAPHRAM ACTION CALCULATED

*** RIGHT ENDWALL ***

RIGHT ENDWALL IS MAINFRAME
NO DIAPHRAM ACTION CALCULATED

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*****
*
*      Auto/Steel Design
* A Synercom Technology, Inc. Development *
*      for NCI Building Systems
*      Release 7, MOD 1
*      2000.9.7.1
*
*****
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Run Start Date 04/10/2001 Time 08:41:57

TITLE - JOB#193681 SS 80/12 FL4/5/6/7
PROJECT - 04/06/01
ENGR - MAC

TYPE - RIGID FRAME

UNITS OPTIONS

INPUT - English
OUTPUT - English

REPORT OPTIONS

ANCHOR BOLTS AND CONNECTIONS
FLANGE BRACE REPORT
DESIGN SUMMARY REPORT WITH DEFLECTIONS
SHORT OUTPUT

SECTION OPTIONS

EXECUTION MODE = ANALYSIS ONLY
MAXIMUM NUMBER OF ITERATIONS = 1
UNITY CHECK RANGE = 0.950 TO 1.035
MAXIMUM SEGMENT SIZE = 2.000 FT
COEF. OF LINEAR EXPANSION = 0.0000065000/DEG.F
MOD. OF ELASTICITY,E = 29000000. PSI
LOCATE FLANGE BRACING = NO

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

PAGE 1
04/10/2001

Job#193681 SS 80/12 FL4/5/6/7
MAC,04/06/01,,,,AC,FB,,DF,,,SH
3,1,.95,1.035,,,,N,,

SPANS

80.

12,,,8.,10.5,,,36.5,,,,G

8,,,

8B,,,WB,,,8B,,,55,,,,,,,,,46.

36.5,24.5,36.5,24.5,36.5,2.25,8,,,20402,P,

8D,,,WB,,,8D,,,18.2,55.,46.

8E,,,WA,,,8D,,,20.,55.,46.

8D,,,WA,,,8C,,,20.,55.,46.

8D,,,WB,,,8E,,,55.,46.

5.,5.,5.,,X,X,X,X,X,X,,

27,,,8.,10.5,,,36.5,,,,G

15,,,19.,X,23.,,

8D,,,WB,,,8F,,,55,,,,,,,,,46.

LOAD FACTORS,25.,150.

DEAD LOAD,.05

LIVE LOAD,.75

WIND LOAD,28.75,PSF,SPEC,.8,-1.4,-.7,-.5

CONDITIONS

1,,4,5,9,11

LOADCOND

LDCN,7,100.,DL,100.,LL,50.,WLR,,, DL + 1/2WLR + LL

LDCN,8,100.,DL,100.,WL4,,,, DL + EQL/1.4

LDCN,9,100.,DL,100.,WR4,,,, DL + EQR/1.4

LOADS

LOAD,2,3,WL4,GLOB,X,CONC,,4.6,,,EQL

LOAD,2,3,WR4,GLOB,X,CONC,,4.6,,,EQR

END

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

CYCLE 1
04/10/2001

SPAN LENGTHS

80.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0

LEFT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R Kx
12.000	0.000	8.000	10.500	0.000	0.000	36.500	0.00	0.00	0.00	G	0.00

GIRT AND BRACE LOCATIONS

8.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8B	WB	8B	55.00					0.00	46.00

RAFTER AT LEFT KNEE

36.500 24.500 36.500 24.500 36.500 2.250 8.000 0.000 0.0 20402 P 0

SECTION 1 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	WEB	INNER FLANGE-/	LENGTH	FY	FY	Kx
8D	WB	8D	18.20	55.00	46.00	0.00

SECTION 2 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	WEB	INNER FLANGE-/	LENGTH	FY	FY	Kx
8E	WA	8D	20.00	55.00	46.00	0.00

SECTION 3 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	WEB	INNER FLANGE-/	LENGTH	FY	FY	Kx
8C	WA	8C	20.00	55.00	46.00	0.00

SECTION 4 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	WEB	INNER FLANGE-/	LENGTH	FY	FY	Kx
8D	WB	8E	0.00	55.00	46.00	0.00

PURLIN AND BRACE LOCATIONS

5.000 5.000 5.000 X X X X X 0

RIGHT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R Kx
27.000	0.000	8.000	10.500	0.000	0.000	36.500	0.00	0.00	0.00	G	0.00

GIRT AND BRACE LOCATIONS

15.000	19.000	23.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8D	WB	8F	55.00					0.00	46.00

MACRO INPUT ECHO

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NCI Building Systems, L.P.

JOB#193681 SS 80/12 FL4/5/6/7

04/10/2001

FACTORS 25.000 150.000

DEAD LOAD 0.050 0.000 0.000 0.000 0.000
 LIVE LOAD 0.750 0.000 0.000 0.000 0.000
 WIND LOAD 28.750 PSF SPEC 0.800-1.400-0.700-0.500

LOAD CONDITIONS

1 2 4 5 9 11 0 0 0 0 0 0 0 0 0.00 0.00 0.00 0.00 0

LOADCOND

LDCN 7100.00 DL 100.00 LL 50.00 WLR 0.00 DL + 1/2WLR + LL
 LDCN 8100.00 DL 100.00 WL4 0.00 0.00 DL + EQL/1.4
 LDCN 9100.00 DL 100.00 WR4 0.00 0.00 DL + EQR/1.4

LOADS

LOAD 2 3 WL4 GLOB X CONC 0.000 4.600 0.000 0.000 EQL
 LOAD 2 3 WR4 GLOB X CONC 0.000 -4.600 0.000 0.000 EQR
 LOAD 1 2 DL GLOB Y UNIF 0.00000 -0.03454 0.00000 -0.03454 DLWT
 LOAD 1 2 WLL GLOB X UNIF 0.00000 0.67290 10.25418 0.67290 WLLX
 LOAD 1 2 WLR GLOB X UNIF 0.00000 -0.42056 10.25418 -0.42056 WLRX
 LOAD 2 3 LL GLOB Y UNIF 0.00000 -0.78425 0.00000 -0.78425 LIVE
 LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.05228 0.00000 -0.05228 DEAD
 LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.04377 0.00000 -0.04377 DLWT
 LOAD 2 3 WLL GLOB X UNIF 0.00000 -0.19729 76.50639 -0.19729 WLLX
 LOAD 2 3 WLL GLOB Y UNIF 0.00000 1.05220 76.50639 1.05220 WLLY
 LOAD 2 3 WLR GLOB X UNIF 0.00000 -0.09864 76.50639 -0.09864 WLRX
 LOAD 2 3 WLR GLOB Y UNIF 0.00000 0.52610 76.50639 0.52610 WLRX
 LOAD 4 3 DL GLOB Y UNIF 0.00000 -0.04711 0.00000 -0.04711 DLWT
 LOAD 4 3 WLL GLOB X UNIF 0.00000 0.40097 24.19933 0.40097 WLLX
 LOAD 4 3 WLR GLOB X UNIF 0.00000 -0.64155 24.19933 -0.64155 WLRX
 END

LOAD CONDITION ARRAY

1	DL	100.	LL	100.	0.	0.
2	DL	100.	WLL	100.	0.	0.
3	DL	100.	LL	50.	WLL	100.
4	DL	100.	WLL	50.	LL	100.
5	DL	100.	WLR	100.	0.	0.
6	DL	100.	LL	50.	WLR	100.
7	DL	100.	LL	100.	WLR	50.
8	DL	100.	WL4	100.	0.	0.
9	DL	100.	WR4	100.	0.	0.

LOAD CONDITION DESCRIPTIONS

1 DEAD + LIVE LOAD
 2 DL + WLL
 3 DL + 1/2LL + WLL
 4 DL + 1/2WLL + LL
 5 DL + WLR
 6 DL + 1/2LL + WLR
 7 DL + 1/2WLR + LL
 8 DL + EQL/1.4
 9 DL + EQR/1.4

FRAME DESIGN DATA

060

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

04/10/2001

CONFIGURATION (NON-SYMMETRIC FRAME) ...

BUILDING WIDTH = 80.00 FT
NUMBER OF SPANS = 1
SPAN WIDTHS (FT) = 80.00
DESIGN BAY SIZE = 25.00 FT
LEFT EAVE HEIGHT = 12.00 FT
RIGHT EAVE HEIGHT = 27.00 FT
LEFT COLUMN SLOPE = 0.00 /12
LEFT RAFTER SLOPE = 2.25 /12
RIGHT RAFTER SLOPE = 2.25 /12
RIGHT COLUMN SLOPE = 0.00 /12
GIRT DEPTH = 8.00 IN
PURLIN DEPTH = 8.00 IN

LOADINGS ...

DEAD LOAD = 2.000 PSF
LIVE LOAD = 30.000 PSF
WIND LOAD = 28.750 PSF

WIND LOAD PARAMETERS ...

WIND LOAD METHOD = SPEC
WIND INTENSITY = 28.75 PSF
ROOF HEIGHT = 19.50 FT
WIND LEFT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLL
WIND RIGHT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLR

LOAD CONDITIONS ...

LOAD CONDITION 1 = DEAD + LIVE LOAD
LOAD CONDITION 2 = DL + WLL
LOAD CONDITION 3 = DL + 1/2LL + WLL
LOAD CONDITION 4 = DL + 1/2WLL + LL
LOAD CONDITION 5 = DL + WLR
LOAD CONDITION 6 = DL + 1/2LL + WLR
LOAD CONDITION 7 = DL + 1/2WLR + LL
LOAD CONDITION 8 = DL + EQL/1.4
1. 4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2
LOAD CONDITION 9 = DL + EQR/1.4
1. -4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 1 - DEAD + LIVE LOAD

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	34.054	22.464	0.000	0.000	0.000
2	2				-0.184	1.383
3					-3.321	2.051
4					-4.036	2.153
5					-1.963	1.705
6	3				0.046	1.384
7	4	34.747	-22.459	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 2 - DL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-34.801	-23.632	0.000	0.000	0.000
2	2				0.240	-1.842
3					3.999	-2.649
4					4.644	-2.739
5					2.120	-2.195
6	3				-0.068	-1.842
7	4	-36.811	22.113	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 3 - DL + 1/2LL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-19.792	-13.638	0.000	0.000	0.000
2	2				0.158	-1.226
3					2.520	-1.735
4					2.846	-1.780
5					1.246	-1.435
6	3				-0.047	-1.225
7	4	-21.838	12.121	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 4 - DL + 1/2WLL + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	14.635	9.410	0.000	0.000	0.000
2	2				-0.054	0.387
3					-1.140	0.615
4					-1.494	0.666
5					-0.796	0.515
	3				0.010	0.388
7	4	13.941	-10.164	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 5 - DL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-11.696	4.529	0.000	0.000	0.000
2	2				0.208	-1.670
3					2.637	-2.199
4					2.702	-2.208
5					1.090	-1.870
6	3				-0.073	-1.688
7	4	-19.689	22.851	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 6 - DL + 1/2LL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	3.313	14.522	0.000	0.000	0.000
2	2				0.126	-1.054
3					1.157	-1.285
4					0.904	-1.249
5					0.215	-1.110
6	3				-0.052	-1.071
7	4	-4.716	12.860	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 7 - DL + 1/2WLR + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	26.188	23.490	0.000	0.000	0.000
2	2				-0.070	0.472
3					-1.821	0.840
4					-2.466	0.932
5					-1.311	0.678
6	3				0.008	0.465
7	4	22.502	-9.795	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 8 - DL + EQL/1.4

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	3.436	-1.101	0.000	0.000	0.000
2	2				-0.048	0.383
3					-0.577	0.496
4					-0.567	0.492
5					-0.204	0.414
	3				0.016	0.379
	4	5.402	-3.498	0.000	0.000	0.000

DESIGN SUMMARY REPORT

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

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FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 9 - DL + EQR/1.4

JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	4.638	6.055	0.000	0.000	0.000
2	2				0.008	-0.082
3					-0.147	-0.050
4					-0.313	-0.024
5					-0.224	-0.043
6	3				-0.007	-0.078
7	4	4.201	-1.455	0.000	0.000	0.000

DESIGN SUMMARY REPORT

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

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EXT.COLUMN 1- 2 LENGTH 10.25 FT MEMBER ANGLE 83.08 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 354. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	8.99	55.	46.	5 1.80 FT	10.50 IN 36.50 IN	8.000 x 0.2500	0.2500	8.000 x 0.2500	0.751	6.3 FT	1

(CONTROLLING ACTIONS)

SECTION NO.	FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR-----		
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS)	
1	36.30	-114.56	15.04	33.00	24.84	3.28	-15.45	15.45	0.22	0.47	0.53	1	-18.23	36.09

RAFTER 2- 3 LENGTH 76.51 FT MEMBER ANGLE 10.53 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 3349. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	18.20	55.	46.	4 4.55 FT	36.50 IN 24.50 IN	8.000 x 0.3750	0.2500	8.000 x 0.3750	0.939	19.3 FT	1
2	20.00	55.	46.	4 5.00 FT	24.50 IN 36.50 IN	8.000 x 0.5000	0.1875	8.000 x 0.3750	0.887	26.8 FT	2
3	20.00	55.	46.	4 5.00 FT	36.50 IN 24.50 IN	8.000 x 0.3750	0.1875	8.000 x 0.3125	0.985	39.3 FT	1
4	15.63	55.	46.	3 5.21 FT	24.50 IN 36.50 IN	8.000 x 0.3750	0.2500	8.000 x 0.5000	0.984	75.0 FT	2

(CONTROLLING ACTIONS)

SECTION NO.	FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR-----		
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS)	
1	25.53	197.40	13.73	31.24	33.00	2.14	25.19	-25.19	0.16	0.78	0.76	1	24.75	36.34
2	-23.27	-323.09	36.80	44.00	38.80	-1.90	-29.49	34.42	0.05	0.67	0.89	1	12.93	23.20
3	21.81	281.73	13.94	27.57	33.00	1.79	23.63	-25.56	0.13	0.86	0.77	1	-22.60	23.02
	-25.54	539.99	36.80	39.79	44.00	-1.61	39.17	-34.78	0.04	0.98	0.79	1	-35.31	36.47

EXT.COLUMN 4- 3 LENGTH 24.20 FT MEMBER ANGLE 93.00 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 1140. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	22.56	55.	46.	12 1.88 FT	10.50 IN 36.50 IN	8.000 x 0.3750	0.2500	8.000 x 0.6250	0.985	22.6 FT	2

(CONTROLLING ACTIONS)

SECTION NO.	FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR-----		
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS)	
1	-39.45	556.13	36.80	39.84	44.00	-2.34	39.25	-31.36	0.06	0.99	0.71	2	29.14	48.80

FRAME WEIGHT (EXCLUDING CONNECTIONS) IS 4843. LB

FLANGE BRACE REPORT

NCI Building Systems, L.P.
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Locate Flange Bracing Option: OFF

COLUMN 1 - 2

GIRTS LOCATED AT 8.00FT
BRACED AT X

RAFTER 2 - 3

PURLINS LOCATED AT	2.71FT	7.79FT	12.88FT	17.97FT	23.05FT	28.14FT	33.23FT	38.32FT	43.40FT	48.49FT
BRACED AT	X	X	X		X		X		X	
PURLINS LOCATED AT	53.58FT	58.66FT	63.75FT	68.84FT	73.90FT	76.51FT				
BRACED AT	X		X	X	X	X				

COLUMN 4 - 3

GIRTS LOCATED AT 15.00FT 19.00FT 23.00FT
BRACED AT X X

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SUPPORT JOINT 1 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 10.5000 (IN)
 OUTER FLANGE WIDTH 8.0000 (IN)
 INNER FLANGE WIDTH 8.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			WIND LOAD CRITICAL FORCES		
		LOAD CASE			LOAD CASE
SHEAR	22.464 (KIPS)	1	SHEAR	23.632 (KIPS)	2
TENSION	0.000 (KIPS)	1	TENSION	34.801 (KIPS)	2
COMPRESSION	34.054 (KIPS)	1	COMPRESSION	26.188 (KIPS)	2
SHEAR & TENS ...	0.000 (KIPS)	1	SHEAR & TENS ...	77.337 (KIPS)	2

PINNED BASE CONNECTION DESIGN RESULTS: Successful Design

ALLOWABLE

SHEAR 24.299 (KIPS)
 TENSION (acting alone).. 46.879 (KIPS)
 COMPRESSION 115.500 (KIPS)

WIND/SEISMIC ALLOWABLE

SHEAR 32.317 (KIPS)
 TENSION (acting alone).. 62.349 (KIPS)
 COMPRESSION 115.500 (KIPS)

ANCHOR BOLTS (A307)

QUANTITY AND DIAMETER (2) 1.2500 (IN)
 INTERIOR PITCH 5.0000 (IN)
 TYPICAL GAUGE 5.0000 (IN)
 DISTANCE TO FIRST ROW 4.0000 (IN)

BASE PLATE

PLATE WIDTH 10.0000 (IN)
 PLATE THICKNESS 0.7500 (IN)
 PLATE LENGTH 11.0000 (IN)

ANCHOR BOLTS AND CONNECTIONS REPORT

NCI Building Systems, L.P.
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SUPPORT JOINT 4 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 10.5000 (IN)
 OUTER FLANGE WIDTH 8.0000 (IN)
 INNER FLANGE WIDTH 8.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			LOAD CASE	WIND LOAD CRITICAL FORCES			LOAD CASE
SHEAR	22.459 (KIPS)	1		SHEAR	22.851 (KIPS)	5	
TENSION	0.000 (KIPS)	1		TENSION	36.811 (KIPS)	5	
COMPRESSION ...	34.747 (KIPS)	1		COMPRESSION ...	22.502 (KIPS)	5	
SHEAR & TENS ...	0.000 (KIPS)	1		SHEAR & TENS ...	76.614 (KIPS)	5	

PINNED BASE CONNECTION DESIGN RESULTS: Successful Design

ALLOWABLE

SHEAR 24.299 (KIPS)
 TENSION (acting alone).. 46.879 (KIPS)
 COMPRESSION 115.500 (KIPS)

WIND/SEISMIC ALLOWABLE

SHEAR 32.317 (KIPS)
 TENSION (acting alone).. 62.349 (KIPS)
 COMPRESSION 115.500 (KIPS)

ANCHOR BOLTS (A307)

QTY AND DIAMETER (2) 1.2500 (IN)
 INTERIOR PITCH 5.0000 (IN)
 TYPICAL GAUGE 5.0000 (IN)
 DISTANCE TO FIRST ROW 4.0000 (IN)

BASE PLATE

PLATE WIDTH 10.0000 (IN)
 PLATE THICKNESS 0.7500 (IN)
 PLATE LENGTH 11.0000 (IN)

ANCHOR BOLTS AND CONNECTIONS REPORT

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 1: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH

INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--		--BOLT QTY & DIAMETER--				
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
8.0000	0.6250	47.5625	55.0	1.1250	1.1250	4.0000	3.5000	(4) 0.8750	(4) 0.8750	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	36.0000	0.2500	8.0000	8.0000	0.2500	0.2500
RIGHT	35.7500	0.2500	8.0000	8.0000	0.3750	0.3750

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRYING FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	130.275	4.120	7	0.000	319.378	363.197	Successful Design
INNER	233.963	14.055	2	0.000	319.294	363.565	Successful Design

ANCHOR BOLTS AND CONNECTIONS REPORT

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 3: INTERMEDIATE RAFTER SPLICE (4)

OUTER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

INNER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

-----CONNECTION PLATE-----				--EDGE DISTANCE--				--BOLT QTY & DIAMETER--		
WIDTH	THICK.	LENGTH	YIELD	OUT.FLG	IN. FLG	PITCH	GAUGE	OUTER FLG.	INNER FLG.	BOLT
(IN)	(IN)	(IN)	(KSI)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	TYPE
8.0000	0.7500	36.6875	55.0	1.2500	1.2500	4.0000	3.5000	(6) 1.0000	(4) 1.0000	A325

SEGMENT	DESIGN	WEB	--FLANGE WIDTH--		--FLANGE THICK.--	
	DEPTH	THICK.	OUTER	INNER	OUTER	INNER
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)
LEFT	35.6250	0.1875	8.0000	8.0000	0.5000	0.3750
RIGHT	35.8125	0.1875	8.0000	8.0000	0.3750	0.3125

DESIGN DATA:

FLANGE	ADJUSTED	ASSOCIATED	LOAD	BOLT	BOLT	YIELD	RESULTS
	MOMENT	SHEAR		PRYING	RUPTURE	ALLOW	
	(KIP-FT)	(KIPS)	COND	FORCE	ALLOW	ALLOW	
	(KIP-FT)	(KIPS)		(KIPS)	(KIP-FT)	(KIP-FT)	
OUTER	356.762	6.320	2	0.000	548.385	520.615	Successful Design
INNER	248.232	4.490	1	0.000	381.201	490.293	Successful Design

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 5: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH

INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--				--BOLT QTY & DIAMETER--		
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
8.0000	1.0000	57.0000	55.0	1.6250	1.6250	4.0000	4.5000	(4) 1.2500	(6) 1.2500	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	35.5000	0.2500	8.0000	8.0000	0.3750	0.6250
RIGHT	35.6250	0.2500	8.0000	8.0000	0.3750	0.5000

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRYING FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	420.607	6.276	1	0.000	772.610	990.527	Successful Design
INNER	702.116	2.343	2	0.000	1102.683	1235.960	Successful Design

MEMBER WEIGHTS REPORT

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

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Member Identification		Member Weight (w/o Connections) (LB)	Weight of Connections (LB)	Total Member Weight (LB)
Ext. Column	1- 2	354.2	90.9	445.1
Rafter	2- 3	3348.7	321.7	3670.3
Ext. Column	4- 3	1140.1	152.7	1292.7
Totals:		4842.9	565.2	5408.1

MATERIALS REPORT

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

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Material Type and Size	Material Quantity	Material Weight (LB)
Flange Plates		
8.0 x 0.2500 (8B)	20.5 FT	139.6
8.0 x 0.3750 (8D)	120.0 FT	1225.4
8.0 x 0.5000 (8E)	37.2 FT	506.0
8.0 x 0.3125 (8C)	20.0 FT	170.1
8.0 x 0.6250 (8F)	24.2 FT	411.7
	Subtotal	2452.8
Web Plates		
0.25000 (WB)	159.8 SQFT	1631.7
0.18750 (WA)	99.1 SQFT	758.4
	Subtotal	2390.1
Connection Plates		
10.0 x 0.7500	1.8 FT	46.8
8.0 x 0.6250	7.9 FT	134.9
8.0 x 0.7500	6.1 FT	124.9
8.0 x 1.0000	9.5 FT	258.6
	Subtotal	565.2
Total Weight		5408.1 LB

SECTION FAILURE SUMMARY

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NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL4/5/6/7

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DATE 04/10/2001

Member Identification	Section Number	Maximum Combined Stress Ratio	Maximum Web Force Ratio	Web d/t Violation
No sections failed				

CONNECTION FAILURE SUMMARY

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NCI Building Systems, L.P.
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Member	Identification	Connection Type/Location	Description
No connections failed			

Run End Date 04/10/2001 Time 08:41:57

FLANGE TO FLANGE STIFFENER**1.) LOADS**

M 719.00 ft kips
P 6.00 kips

CONSTANTS		
Fy	50	ksi
E	29,000	ksi
Pi	3.141593	
Cc	75.65957	

2.) KNEE DIMENSION

Dc 36.00 in
Dr 36.00 in
tw 0.250 in

3.) WEB SHEAR**Actual Web Shear**

$$V = M/Dr = 239.67 \text{ kips}$$

Allowable Web Shear

$$V_a = F_v \times D_c \times t_w$$

$$F_v = F_y/2.89 \times (C_v) < 0.40 F_y \quad \text{AISC Eqn (F4-2)}$$

when $h = D_c$, $a = D_r$, and $D_c = D_r$ then $a = h$

$$k_v = 4.00 + 5.34/(a/h)^2 \quad k_v = 9.34$$

$$C_v = 190 \sqrt{k_v / F_y} / (h/t_w) \quad , \text{ when } C_v > 0.8$$

$$C_v = 45000 k_v / F_y (h/t_w)^2 \quad , \text{ when } C_v < 0.8$$

$$C_v = 0.405$$

$$F_v = 7.014 \text{ ksi}$$

$$V_a = 63.122 \text{ kips}$$

$V_a < V$, Stiffeners are required

4.) CALCULATED FORCE TO BE CARRIED BY STIFFENERS, V_s

$$V_s = 176.54 \text{ kips}$$

5.) CALCULATE COMPRESSION FORCE (OR TENSION FORCE) ON STIFFENERS, F_s

$$F_s = 176.54 \text{ kips}$$

6.) CALCULATE REQUIRED STIFFENER AREA, A_s

$$A_s = F_s / 0.6 F_y$$

$$A_s = 5.88 \text{ in}^2$$

$$\text{try stiff width, } w_s = 4.000 \text{ in}$$

$$\text{try stiff thickness, } t_s = 1 \text{ in}$$

$$t_s = 1.47 \text{ in}$$

7.) CHECK STIFFENER FOR BEARING

$$\text{Inertia of stiffener, } I = 46.793 \text{ in}^4$$

$$\text{Effective Area of stiff, } A = 9.563 \text{ in}^2$$

$$\text{radius of gyration, } r = 2.212 \text{ in}$$

$$0.75 * KL / r = 12.21$$

ALLOWABLE STRESS, F_a

$$KL/r < C_c$$

$$F_a = 28.58 \text{ ksi}$$

ACTUAL BEARING STRESS, f_a

$$f_a = ((-)M/D_c + P/2) / A$$

$$f_a = 25.38 \text{ ksi} \quad \mathbf{f_a < F_a, \text{ ok}}$$

8.) CHECK LOCAL BUCKLING OF THE STIFFENER

where : $b = w_s$, $t = t_s$, $b/t < 95/\sqrt{F_y}$

$$b/t = 4.00$$

$$95/\sqrt{F_y} = 13.44 \quad \mathbf{b/t < 95/\sqrt{F_y} \dots \text{ok}}$$

```
*****
*
*      Auto/Steel Design      *
*  * A Synercom Technology, Inc. Development *
*      for NCI Building Systems      *
*      Release 7, MOD 1      *
*      2000.9.7.1      *
*
*****
```

Run Start Date 04/06/2001 Time 17:01:45

TITLE - JOB#193681 SS 80/12 FL 2/3

PROJECT - 04/06/01

ENGR - MAC

TYPE - RIGID FRAME

UNITS OPTIONS

INPUT - English

OUTPUT - English

REPORT OPTIONS

ANCHOR BOLTS AND CONNECTIONS

FLANGE BRACE REPORT

DESIGN SUMMARY REPORT WITH DEFLECTIONS

SHORT OUTPUT

COMPUTATION OPTIONS

EXECUTION MODE = ANALYSIS ONLY

MAXIMUM NUMBER OF ITERATIONS = 1

UNITY CHECK RANGE = 0.950 TO 1.035

MAXIMUM SEGMENT SIZE = 2.000 FT

COEF. OF LINEAR EXPANSION = 0.0000065000/DEG.F

MOD. OF ELASTICITY,E = 29000000. PSI

LOCATE FLANGE BRACING = NO

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 2/3

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JOB#193681 SS 80/12 FL 2/3
MAC,04/06/01,,,,AC,FB,,DF,,,SH
3,1,,95,1.035,,,,N,,
SPANS
80,
12,,,8,,10.5,,,40.5,,,,G
8,,,
10C,,,WB,,,10C,,,55,,,,,,,,,46,

41,,31,,41,,31,,41,,2.25,8,,,20402,P,
10E,,,WC,,,10D,,,18.2,55,,46,
10F,,,WB,,,10D,,,20,,55,,46,
10E,,,WB,,,10D,,,20,,55,,46,
10E,,,WC,,,10F,,,55,,46,
5,,5,,5,,,,X,X,X,X,X,,,

27,,,8,,11,,,41,,,,,G
15,,,19,,X,23,,,
12D,,,WC,,,12F,,,55,,,,,,,,,46,

LOAD FACTORS,25,,150, .
DEAD LOAD,.05
LIVE LOAD,.75
WIND LOAD,28.75,PSF,SPEC,.8,-1.4,-.7,-.5
CONDITIONS
1,,4,5,9,11
LOADCOND
LDCN,7,100,,DL,100,,LL,50,,WLR,,, DL + 1/2WLR + LL
LDCN,8,100,,DL,100,,WL4,,,,, DL + EQL/1.4
LDCN,9,100,,DL,100,,WR4,,,,, DL + EQR/1.4
LOADS
LOAD,2,3,LL,GLOB,Y,UNIF,,-.6865
LOAD,2,3,WL4,GLOB,X,CONC,,4.6,,,EQL
LOAD,2,3,WR4,GLOB,X,CONC,,4.6,,,EQR
END

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 2/3

CYCLE 1
04/06/2001

SPAN LENGTHS

80.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0

LEFT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R Kx
12.000	0.000	8.000	10.500	0.000	0.000	40.500	0.00	0.00	0.00	6	0.00

GIRT AND BRACE LOCATIONS

8.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10C	WB	10C	55.00				0.00	46.00

RAFTER AT LEFT KNEE

41.000 31.000 41.000 31.000 41.000 2.250 8.000 0.000 0.0 20402 P 0

SECTION 1 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
10E	WC	10D	18.20	55.00	46.00	0.00

SECTION 2 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
10F	WB	10D	20.00	55.00	46.00	0.00

SECTION 3 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
10E	WB	10D	20.00	55.00	46.00	0.00

SECTION 4 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
10E	WC	10F	0.00	55.00	46.00	0.00

PURLIN AND BRACE LOCATIONS

5.000 5.000 5.000 X X X X X 0

RIGHT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R Kx
27.000	0.000	8.000	11.000	0.000	0.000	41.000	0.00	0.00	0.00	6	0.00

GIRT AND BRACE LOCATIONS

15.000	19.000X23.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12D	WC	12F	55.00				0.00	46.00

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 2/3

04/06/2001

FACTORS 25.000 150.000
DEAD LOAD 0.050 0.000 0.000 0.000 0.000
LIVE LOAD 0.750 0.000 0.000 0.000 0.000
WIND LOAD 28.750 PSF SPEC 0.800-1.400-0.700-0.500

LOAD CONDITIONS 0
1 2 4 5 911 0 0 0 0 0 0 0 0 0.00 0.00 0.00 0.00 0

LOADCOND
LDCN 7100.00 DL 100.00 LL 50.00 WLR 0.00 DL + 1/2WLR + LL
LDCN 8100.00 DL 100.00 WL4 0.00 DL + EQL/1.4
LDCN 9100.00 DL 100.00 WR4 0.00 DL + EQR/1.4
LOADS 0

LOAD 2 3 LL GLOB Y UNIF 0.0000 -0.687 0.000 0.000
LOAD 2 3 WL4 GLOB X CONC 0.000 4.600 0.000 0.000 EQL
LOAD 2 3 WR4 GLOB X CONC 0.000 -4.600 0.000 0.000 EQR
LOAD 1 2 DL GLOB Y UNIF 0.00000 -0.04436 0.00000 -0.04436 DLWT
LOAD 1 2 WLL GLOB X UNIF 0.00000 0.67378 10.24073 0.67378 WLLX
LOAD 1 2 WLR GLOB X UNIF 0.00000 -0.42111 10.24073 -0.42111 WLRX
LOAD 2 3 LL GLOB Y UNIF 0.00000 -0.78949 0.00000 -0.78949 LIVE
LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.05263 0.00000 -0.05263 DEAD
LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.06629 0.00000 -0.06629 DLWT
LOAD 2 3 WLL GLOB X UNIF 0.00000 -0.19861 75.99801 -0.19861 WLLX
LOAD 2 3 WLL GLOB Y UNIF 0.00000 1.05924 75.99801 1.05924 WLLY
LOAD 2 3 WLR GLOB X UNIF 0.00000 -0.09930 75.99801 -0.09930 WLRX
LOAD 2 3 WLR GLOB Y UNIF 0.00000 0.52962 75.99801 0.52962 WLRX
LOAD 4 3 DL GLOB Y UNIF 0.00000 -0.06865 0.00000 -0.06865 DLWT
LOAD 4 3 WLL GLOB X UNIF 0.00000 0.40465 23.97925 0.40465 WLLX
LOAD 4 3 WLR GLOB X UNIF 0.00000 -0.64743 23.97925 -0.64743 WLRX
END

LOAD CONDITION ARRAY

1	DL	100.	LL	100.	0.	0.
2	DL	100.	WLL	100.	0.	0.
3	DL	100.	LL	50.	WLL	100.
4	DL	100.	WLL	50.	LL	100.
5	DL	100.	WLR	100.	0.	0.
6	DL	100.	LL	50.	WLR	100.
7	DL	100.	LL	100.	WLR	50.
8	DL	100.	WL4	100.	0.	0.
9	DL	100.	WR4	100.	0.	0.

LOAD CONDITION DESCRIPTIONS

1 DEAD + LIVE LOAD
2 DL + WLL
3 DL + 1/2LL + WLL
4 DL + 1/2WLL + LL
5 DL + WLR
6 DL + 1/2LL + WLR
7 DL + 1/2WLR + LL
8 DL + EQL/1.4
9 DL + EQR/1.4

FRAME DESIGN DATA

NCI Building Systems, L.P.
 JOB#193681 SS 80/12 FL 2/3

04/06/2001

CONFIGURATION (NON-SYMMETRIC FRAME) ...

BUILDING WIDTH = 80.00 FT
 NUMBER OF SPANS = 1
 SPAN WIDTHS (FT) = 80.00
 DESIGN BAY SIZE = 25.00 FT
 LEFT EAVE HEIGHT = 12.00 FT
 RIGHT EAVE HEIGHT = 27.00 FT
 LEFT COLUMN SLOPE = 0.00 /12
 LEFT RAFTER SLOPE = 2.25 /12
 RIGHT RAFTER SLOPE = 2.25 /12
 RIGHT COLUMN SLOPE = 0.00 /12
 GIRT DEPTH = 8.00 IN
 PURLIN DEPTH = 8.00 IN

LOADINGS ...

DEAD LOAD = 2.000 PSF
 LIVE LOAD = 30.000 PSF
 WIND LOAD = 28.750 PSF

WIND LOAD PARAMETERS ...

WIND LOAD METHOD = SPEC
 WIND INTENSITY = 28.75 PSF
 ROOF HEIGHT = 19.50 FT
 LEFT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLL
 WIND RIGHT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLR

LOAD CONDITIONS ...

LOAD CONDITION 1 = DEAD + LIVE LOAD
 LOAD CONDITION 2 = DL + WLL
 LOAD CONDITION 3 = DL + 1/2LL + WLL
 LOAD CONDITION 4 = DL + 1/2WLL + LL
 LOAD CONDITION 5 = DL + WLR
 LOAD CONDITION 6 = DL + 1/2LL + WLR
 LOAD CONDITION 7 = DL + 1/2WLR + LL
 LOAD CONDITION 8 = DL + EQL/1.4
 1. 4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2
 LOAD CONDITION 9 = DL + EQR/1.4
 1. -4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 1 - DEAD + LIVE LOAD

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	61.067	40.405	0.000	0.000	0.000
2	2				-0.197	1.201
3					-2.995	1.777
4					-3.644	1.867
5					-1.748	1.467
6	3				0.040	1.163
7	4	62.027	-40.373	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 2 - DL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-33.853	-23.091	0.000	0.000	0.000
2	2				0.139	-0.870
3					1.947	-1.246
4					2.270	-1.290
5					1.027	-1.028
6	3				-0.033	-0.846
7	4	-35.377	21.554	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 3 - DL + 1/2LL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-5.812	-4.418	0.000	0.000	0.000
2	2				0.048	-0.314
3					0.561	-0.423
4					0.583	-0.425
5					0.218	-0.349
6	3				-0.015	-0.307
7	4	-7.433	2.895	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 4 - DL + 1/2WLL + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	41.648	27.331	0.000	0.000	0.000
2	2				-0.120	0.721
3					-1.910	1.088
4					-2.374	1.153
5					-1.169	0.899
6	3				0.022	0.697
7	4	41.269	-28.068	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 5 - DL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-10.772	5.126	0.000	0.000	0.000
2	2				0.120	-0.801
3					1.252	-1.042
4					1.289	-1.047
5					0.517	-0.891
6	3				-0.039	-0.798
7	4	-18.276	22.244	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 6 - DL + 1/2LL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	17.269	23.800	0.000	0.000	0.000
2	2				0.029	-0.246
3					-0.134	-0.220
4					-0.398	-0.183
5					-0.292	-0.211
6	3				-0.021	-0.260
7	4	9.668	3.586	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 7 - DL + 1/2WLR + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	53.188	41.439	0.000	0.000	0.000
2	2				-0.130	0.756
3					-2.257	1.190
4					-2.864	1.274
5					-1.424	0.968
6	3				0.019	0.721
7	4	49.820	-27.723	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 8 - DL + EQL/1.4

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	4.388	-0.497	0.000	0.000	0.000
2	2				-0.031	0.204
3					-0.324	0.265
4					-0.331	0.264
5					-0.127	0.221
	3				0.009	0.198
	4	6.733	-4.100	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 9 - DL + EQR/1.4

JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	5.580	6.614	0.000	0.000	0.000
2	2				0.002	-0.026
3					-0.122	-0.001
4					-0.211	0.013
5					-0.134	-0.004
6	3				-0.004	-0.025
7	4	5.542	-2.011	0.000	0.000	0.000

DESIGN SUMMARY REPORT

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EXT.COLUMN 1- 2 LENGTH 10.24 FT MEMBER ANGLE 81.73 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 454. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEGMENT	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	8.69	55.	46. 5	1.74 FT	10.50 IN	40.50 IN	10.000 x 0.3125	0.2500	10.000 x 0.3125	0.968	7.8 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D		
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS) T	
1	65.90	-244.35	12.18	33.00	23.71	4.26	-17.15	17.15	0.35	0.52	0.62	1	-31.26	32.58

RAFTER 2- 3 LENGTH 76.00 FT MEMBER ANGLE 10.46 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 5038. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEGMENT	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	18.20	55.	46. 4	4.55 FT	41.00 IN	31.00 IN	10.000 x 0.5000	0.3125	10.000 x 0.3750	0.890	19.4 FT 1
2	20.00	55.	46. 4	5.00 FT	31.00 IN	41.00 IN	10.000 x 0.6250	0.2500	10.000 x 0.3750	0.886	26.9 FT 1
3	20.00	55.	46. 4	5.00 FT	41.00 IN	31.00 IN	10.000 x 0.5000	0.2500	10.000 x 0.3750	0.933	39.4 FT 1
4	14.91	55.	46. 3	4.97 FT	31.00 IN	41.00 IN	10.000 x 0.5000	0.3125	10.000 x 0.6250	0.931	74.3 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D		
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS) T	
1	45.75	374.58	17.51	31.92	33.00	2.52	23.82	-27.12	0.14	0.75	0.82	1	45.48	65.27
2	42.79	500.15	19.09	32.71	33.00	2.32	24.99	-32.36	0.12	0.76	0.98	1	22.79	43.31
3	39.19	515.79	17.26	29.77	33.00	2.09	24.19	-27.47	0.12	0.81	0.83	1	-41.09	43.13
30.48	-764.47	21.05	33.00	33.00	1.29	-31.71	28.71	0.06	0.96	0.87	1	-63.43	63.64	

EXT.COLUMN 4- 3 LENGTH 23.98 FT MEMBER ANGLE 93.55 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 1646. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEGMENT	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	22.12	55.	46. 12	1.84 FT	11.00 IN	41.00 IN	12.000 x 0.3750	0.3125	12.000 x 0.6250	0.977	22.1 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D		
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS) T	
1	62.89	-807.60	22.05	33.00	31.66	2.57	-34.43	27.26	0.12	1.04	0.86	1	-36.46	63.25

FRAME WEIGHT (EXCLUDING CONNECTIONS) IS 7138. LB

FLANGE BRACE REPORT

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Locate Flange Bracing Option: OFF

COLUMN 1 - 2

GIRTS LOCATED AT 8.00FT
BRACED AT X

RAFTER 2 - 3

PURLINS LOCATED AT	2.47FT	7.55FT	12.64FT	17.73FT	22.81FT	27.90FT	32.99FT	38.08FT	43.16FT	48.25FT
BRACED AT	X	X	X		X		X		X	
PURLINS LOCATED AT	53.34FT	58.42FT	63.51FT	68.60FT	73.65FT	76.00FT				
BRACED AT	X		X	X	X	X				

COLUMN 4 - 3

GIRTS LOCATED AT	15.00FT	19.00FT	23.00FT
BRACED AT	X		X

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SUPPORT JOINT 1 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 10.5000 (IN)
 OUTER FLANGE WIDTH 10.0000 (IN)
 INNER FLANGE WIDTH 10.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			WIND LOAD CRITICAL FORCES		
	LOAD CASE			LOAD CASE	
SHEAR	40.405 (KIPS)	1	SHEAR	41.439 (KIPS)	7
TENSION	0.000 (KIPS)	1	TENSION	33.853 (KIPS)	7
COMPRESSION ...	61.067 (KIPS)	1	COMPRESSION ...	53.188 (KIPS)	7
SHEAR & TENS ...	0.000 (KIPS)	1	SHEAR & TENS ...	75.417 (KIPS)	7

PINNED BASE CONNECTION DESIGN RESULTS: No AB Pattern Works

ALLOWABLE

SHEAR 0.000 (KIPS)
 TENSION (acting alone).. 0.000 (KIPS)
 COMPRESSION 0.000 (KIPS)

WIND/SEISMIC ALLOWABLE

SHEAR 0.000 (KIPS)
 TENSION (acting alone).. 0.000 (KIPS)
 COMPRESSION 0.000 (KIPS)

ANCHOR BOLTS (A307)

Y AND DIAMETER (0) 0.0000 (IN)
 INTERIOR PITCH 0.0000 (IN)
 TYPICAL GAUGE 0.0000 (IN)
 DISTANCE TO FIRST ROW 0.0000 (IN)

BASE PLATE

PLATE WIDTH 0.0000 (IN)
 PLATE THICKNESS 0.0000 (IN)
 PLATE LENGTH 0.0000 (IN)

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SUPPORT JOINT 4 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 11.0000 (IN)
 OUTER FLANGE WIDTH 12.0000 (IN)
 INNER FLANGE WIDTH 12.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			WIND LOAD CRITICAL FORCES		
	LOAD CASE			LOAD CASE	
SHEAR	40.373 (KIPS)	1	SHEAR	28.068 (KIPS)	4
TENSION	0.000 (KIPS)	1	TENSION	35.377 (KIPS)	4
COMPRESSION ...	62.027 (KIPS)	1	COMPRESSION ...	49.820 (KIPS)	4
SHEAR & TENS ...	0.000 (KIPS)	1	SHEAR & TENS ...	74.175 (KIPS)	4

PINNED BASE CONNECTION DESIGN RESULTS: No AB Pattern Works

ALLOWABLE

SHEAR 0.000 (KIPS)
 TENSION (acting alone).. 0.000 (KIPS)
 COMPRESSION 0.000 (KIPS)

WIND/SEISMIC ALLOWABLE

SHEAR 0.000 (KIPS)
 TENSION (acting alone).. 0.000 (KIPS)
 COMPRESSION 0.000 (KIPS)

ANCHOR BOLTS (A307)

Y AND DIAMETER (0) 0.0000 (IN)
 INTERIOR PITCH 0.0000 (IN)
 TYPICAL GAUGE 0.0000 (IN)
 DISTANCE TO FIRST ROW 0.0000 (IN)

BASE PLATE

PLATE WIDTH 0.0000 (IN)
 PLATE THICKNESS 0.0000 (IN)
 PLATE LENGTH 0.0000 (IN)

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 1: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH

INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--				--BOLT QTY & DIAMETER--			
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT. FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE	
10.0000	0.5000	53.1250	55.0	1.1250	1.1250	4.0000	3.5000	(4) 0.8750	(4) 0.8750	A325	

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	39.8750	0.2500	10.0000	10.0000	0.3125	0.3125
RIGHT	40.1250	0.3125	10.0000	10.0000	0.5000	0.3750

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRYING FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	188.968	13.331	7	0.000	364.183	277.203	Successful Design
INNER	225.856	14.894	2	0.000	363.456	331.139	Successful Design

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 3: INTERMEDIATE RAFTER SPLICE (4)

OUTER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

INNER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

-----CONNECTION PLATE-----			--EDGE DISTANCE--		--BOLT QTY & DIAMETER--					
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
10.0000	0.6250	41.1250	55.0	1.1250	1.1250	4.0000	3.5000	(6) 0.8750	(8) 0.8750	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	40.0000	0.2500	10.0000	10.0000	0.6250	0.3750
RIGHT	40.1250	0.2500	10.0000	10.0000	0.5000	0.3750

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRYING FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	357.158	6.513	2	0.000	471.756	484.118	Successful Design
INNER	448.319	8.612	1	0.000	597.903	640.868	Successful Design

ANCHOR BOLTS AND CONNECTIONS REPORT

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 5: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH
INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--		--BOLT QTY & DIAMETER--				
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
12.0000	1.0000	64.2500	55.0	1.6250	1.6250	4.0000	4.5000	(6) 1.2500	(4) 1.2500	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	40.0000	0.3125	12.0000	12.0000	0.3750	0.6250
RIGHT	39.8750	0.3125	10.0000	10.0000	0.5000	0.6250

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRYING FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	716.432	11.948	1	0.000	1278.482	1535.548	Successful Design
INNER	685.697	2.590	2	0.000	892.100	1241.560	Successful Design

MEMBER WEIGHTS REPORT

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Member Identification	Member Weight (w/o Connections) (LB)	Weight of Connections (LB)	Total Member Weight (LB)
Ext. Column 1- 2	454.2	75.3	529.5
Rafter 2- 3	5037.8	439.7	5477.6
Ext. Column 4- 3	1646.2	218.6	1864.8
Totals:	7138.3	733.6	7871.9

MATERIALS REPORT

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Material Type and Size	Material Quantity	Material Weight (LB)
Flange Plates		
10.0 x 0.3125 (10C)	20.5 FT	217.8
10.0 x 0.5000 (10E)	56.0 FT	952.7
10.0 x 0.3750 (10D)	59.4 FT	757.7
10.0 x 0.6250 (10F)	36.6 FT	778.8
12.0 x 0.3750 (12D)	24.0 FT	367.2
12.0 x 0.6250 (12F)	24.0 FT	612.0
	Subtotal	3686.2
Web Plates		
0.25000 (WB)	140.0 SQFT	1429.5
0.31250 (WC)	158.5 SQFT	2022.6
	Subtotal	3452.1
Connection Plates		
10.0 x 0.5000	8.8 FT	150.6
10.0 x 0.6250	6.9 FT	145.8
12.0 x 1.0000	10.7 FT	437.2
	Subtotal	733.6
Total Weight		7871.9 LB

SECTION FAILURE SUMMARY

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Member Identification	Section Number	Maximum Combined Stress Ratio	Maximum Web Force Ratio	Web d/t Violation
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No sections failed

CONNECTION FAILURE SUMMARY

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Member		Connection Type/Location	Description
Identification			
Ext. Column	1- 2	Base Plate	No AB Pattern Works
Ext. Column	4- 3	Base Plate	No AB Pattern Works

Run End Date 04/06/2001 Time 17:01:45

```
*****
*                                     *
*      Auto/Steel Design             *
*  * A Synercom Technology, Inc. Development *
*      for NCI Building Systems      *
*      Release 7, MOD 1              *
*      2000.9.7.1                    *
*                                     *
*****
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Run Start Date 04/10/2001 Time 08:31:01

TITLE - JOB#193681 SS 80/12 FL 3
PROJECT - 04/10/01
ENGR - MAC

TYPE - RIGID FRAME

UNITS OPTIONS

INPUT - English
OUTPUT - English

REPORT OPTIONS

ANCHOR BOLTS AND CONNECTIONS
FLANGE BRACE REPORT
DESIGN SUMMARY REPORT WITH DEFLECTIONS
SHORT OUTPUT

ANALYSIS OPTIONS

EXECUTION MODE = ANALYSIS ONLY
MAXIMUM NUMBER OF ITERATIONS = 1
UNITY CHECK RANGE = 0.950 TO 1.035
MAXIMUM SEGMENT SIZE = 2.000 FT
COEF. OF LINEAR EXPANSION = 0.0000065000/DEG.F
MOD. OF ELASTICITY, E = 29000000. PSI
LOCATE FLANGE BRACING = NO

DESIGN INPUT ECHO

NCI Building Systems, L.P.
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JOB#193681 SS 80/12 FL 3

MAC,04/10/01,,,,AC,FB,,DF,,,,SH

3,1,,95,1.035,,,,N,,

SPANS

80.

12,,,8,,10.5,,,36.5,,,,,G

8,,,

8B,,,WB,,,8B,,,55,,,,,,,,,46.

36.5,24.5,36.5,24.5,36.5,2.25,8,,,,,20402,P,

8E,,,WB,,,8D,,,18.2,55.,46.

8E,,,WA,,,8D,,,20.,55.,46.

8D,,,WB,,,8C,,,20.,55.,46.

8E,,,WB,,,8E,,,55.,46.

5.,5.,5.,,X,X,X,X,X,,

27,,,8,,10.5,,,40.5,,,,,G

15.,,19.,X,23.,,

8D,,,WB,,,8F,,,55,,,,,,,,,46.

LOAD FACTORS,25.,150.

DEAD LOAD,.05

LIVE LOAD,.75

WIND LOAD,28.75,PSF,SPEC,.8,-1.4,-.7,-.5

CONDITIONS

1,5,9,11

LOADCOND

LDCN,7,100.,DL,100.,LL,50.,WLR,,, DL + 1/2WLR + LL

LDCN,8,100.,DL,100.,WL4,,,,, DL + EQL/1.4

LDCN,9,100.,DL,100.,WR4,,,,, DL + EQR/1.4

LOADS

LOAD,2,3,LL,GLOB,Y,UNIF,,-.148

LOAD,2,3,WL4,GLOB,X,CONC,,4.6,,,EQL

LOAD,2,3,WR4,GLOB,X,CONC,,-4.6,,,EQR

END

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CYCLE 1
04/10/2001

SPAN LENGTHS

80.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0

LEFT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R
12.000	0.000	8.000	10.500	0.000	0.000	36.500	0.00	0.00	0.00	6	0.00

GIRT AND BRACE LOCATIONS

8.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
8B WB 8B 55.00 0.00 46.00

RAFTER AT LEFT KNEE

36.500 24.500 36.500 24.500 36.500 2.250 8.000 0.000 0.0 20402 P 0

SECTION 1 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8E	WB	8D	18.20	55.00	46.00	0.00

SECTION 2 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8E	WA	8D	20.00	55.00	46.00	0.00

SECTION 3 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8E	WB	8C	20.00	55.00	46.00	0.00

SECTION 4 FOR RAFTER

SECT FLANGE WEB

/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8E	WB	8E	0.00	55.00	46.00	0.00

PURLIN AND BRACE LOCATIONS

5.000 5.000 5.000 X X X X X 0

RIGHT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R
27.000	0.000	8.000	10.500	0.000	0.000	40.500	0.00	0.00	0.00	6	0.00

GIRT AND BRACE LOCATIONS

15.000 19.000X23.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
8D WB 8F 55.00 0.00 46.00

NCI Building Systems, L.P.

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FACTORS 25.000 150.000
 DEAD LOAD 0.050 0.000 0.000 0.000 0.000
 LIVE LOAD 0.750 0.000 0.000 0.000 0.000
 WIND LOAD 28.750 PSF SPEC 0.800-1.400-0.700-0.500

LOAD CONDITIONS 0
 1 2 4 5 9 11 0 0 0 0 0 0 0 0 0.00 0.00 0.00 0.00 0

LOADCOND

LDCN 7100.00 DL 100.00 LL 50.00 WLR 0.00 DL + 1/2WLR + LL
 LDCN 8100.00 DL 100.00 WL4 0.00 0.00 DL + EQL/1.4
 LDCN 9100.00 DL 100.00 WR4 0.00 0.00 DL + EQR/1.4

LOADS

LOADS 0
 LOAD 2 3 LL GLOB Y UNIF 0.000 -0.148 0.000 0.000
 LOAD 2 3 WL4 GLOB X CONC 0.000 4.600 0.000 0.000 EQL
 LOAD 2 3 WR4 GLOB X CONC 0.000 -4.600 0.000 0.000 EQR
 LOAD 1 2 DL GLOB Y UNIF 0.00000 -0.03464 0.00000 -0.03464 DLWT
 LOAD 1 2 WLL GLOB X UNIF 0.00000 0.66646 10.35327 0.66646 WLLX
 LOAD 1 2 WLR GLOB X UNIF 0.00000 -0.41654 10.35327 -0.41654 WLRX
 LOAD 2 3 LL GLOB Y UNIF 0.00000 -0.78642 0.00000 -0.78642 LIVE
 LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.05243 0.00000 -0.05243 DEAD
 LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.04700 0.00000 -0.04700 DLWT
 LOAD 2 3 WLL GLOB X UNIF 0.00000 -0.19783 76.29464 -0.19783 WLLX
 LOAD 2 3 WLL GLOB Y UNIF 0.00000 1.05512 76.29464 1.05512 WLLY
 LOAD 2 3 WLR GLOB X UNIF 0.00000 -0.09892 76.29464 -0.09892 WLRX
 LOAD 2 3 WLR GLOB Y UNIF 0.00000 0.52756 76.29464 0.52756 WLRX
 LOAD 4 3 DL GLOB Y UNIF 0.00000 -0.04899 0.00000 -0.04899 DLWT
 LOAD 4 3 WLL GLOB X UNIF 0.00000 0.39989 24.26469 0.39989 WLLX
 LOAD 4 3 WLR GLOB X UNIF 0.00000 -0.63982 24.26469 -0.63982 WLRX
 END

LOAD CONDITION ARRAY

1	DL	100.	LL	100.	0.	0.
2	DL	100.	WLL	100.	0.	0.
3	DL	100.	LL	50.	WLL	100.
4	DL	100.	WLL	50.	LL	100.
5	DL	100.	WLR	100.	0.	0.
6	DL	100.	LL	50.	WLR	100.
7	DL	100.	LL	100.	WLR	50.
8	DL	100.	WL4	100.	0.	0.
9	DL	100.	WR4	100.	0.	0.

LOAD CONDITION DESCRIPTIONS

1 DEAD + LIVE LOAD
 2 DL + WLL
 3 DL + 1/2LL + WLL
 4 DL + 1/2WLL + LL
 5 DL + WLR
 6 DL + 1/2LL + WLR
 7 DL + 1/2WLR + LL
 8 DL + EQL/1.4
 9 DL + EQR/1.4

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 3

04/10/2001

CONFIGURATION (NON-SYMMETRIC FRAME) ...

BUILDING WIDTH = 80.00 FT
NUMBER OF SPANS = 1
SPAN WIDTHS (FT) = 80.00
DESIGN BAY SIZE = 25.00 FT
LEFT EAVE HEIGHT = 12.00 FT
RIGHT EAVE HEIGHT = 27.00 FT
LEFT COLUMN SLOPE = 0.00 /12
LEFT RAFTER SLOPE = 2.25 /12
RIGHT RAFTER SLOPE = 2.25 /12
RIGHT COLUMN SLOPE = 0.00 /12
GIRT DEPTH = 8.00 IN
PURLIN DEPTH = 8.00 IN

LOADINGS ...

DEAD LOAD = 2.000 PSF
LIVE LOAD = 30.000 PSF
WIND LOAD = 28.750 PSF

WIND LOAD PARAMETERS ...

WIND LOAD METHOD = SPEC
WIND INTENSITY = 28.75 PSF
MEAN ROOF HEIGHT = 19.50 FT
LEFT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLL
WIND RIGHT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLR

LOAD CONDITIONS ...

LOAD CONDITION 1 = DEAD + LIVE LOAD
LOAD CONDITION 2 = DL + WLL
LOAD CONDITION 3 = DL + 1/2LL + WLL
LOAD CONDITION 4 = DL + 1/2WLL + LL
LOAD CONDITION 5 = DL + WLR
LOAD CONDITION 6 = DL + 1/2LL + WLR
LOAD CONDITION 7 = DL + 1/2WLR + LL
LOAD CONDITION 8 = DL + EQL/1.4
1. 4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2
LOAD CONDITION 9 = DL + EQR/1.4
1. -4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 1 - DEAD + LIVE LOAD

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	39.921	27.121	0.000	0.000	0.000
2	2				-0.190	1.413
3					-3.524	2.113
4					-4.250	2.211
5					-1.976	1.717
6	3				0.054	1.385
7	4	40.453	-27.115	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 2 - DL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-34.766	-24.362	0.000	0.000	0.000
2	2				0.213	-1.622
3					3.617	-2.341
4					4.162	-2.413
5					1.805	-1.901
6	3				-0.068	-1.592
7	4	-36.554	22.843	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 3 - DL + 1/2LL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-16.890	-12.121	0.000	0.000	0.000
2	2				0.127	-0.983
3					2.024	-1.386
4					2.241	-1.413
5					0.912	-1.125
6	3				-0.044	-0.966
7	4	-18.806	10.604	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 4 - DL + 1/2WLL + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	20.453	13.621	0.000	0.000	0.000
2	2				-0.075	0.535
3					-1.546	0.841
4					-1.966	0.899
5					-0.979	0.684
	3				0.017	0.522
	4	19.697	-14.375	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 5 - DL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-11.600	4.073	0.000	0.000	0.000
2	2				0.188	-1.504
3					2.369	-1.973
4					2.387	-1.973
5					0.892	-1.657
6	3				-0.075	-1.501
7	4	-19.495	23.306	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 6 - DL + 1/2LL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	6.275	16.314	0.000	0.000	0.000
2	2				0.102	-0.865
3					0.776	-1.017
4					0.466	-0.974
5					-0.002	-0.880
6	3				-0.051	-0.875
7	4	-1.747	11.068	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 7 - DL + 1/2WLR + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	32.036	27.838	0.000	0.000	0.000
2	2				-0.087	0.593
3					-2.170	1.025
4					-2.853	1.119
5					-1.436	0.806
6	3				0.014	0.568
7	4	28.227	-14.143	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 8 - DL + EQL/1.4

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	3.564	-0.894	0.000	0.000	0.000
2	2				-0.044	0.352
3					-0.533	0.455
4					-0.518	0.450
5					-0.173	0.376
	3				0.017	0.344
	4	5.564	-3.706	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 9 - DL + EQR/1.4

JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	4.778	6.171	0.000	0.000	0.000
2	2				0.008	-0.082
3					-0.143	-0.051
4					-0.298	-0.027
5					-0.207	-0.047
6	3				-0.008	-0.079
7	4	4.351	-1.570	0.000	0.000	0.000

EXT.COLUMN 1- 2 LENGTH 10.35 FT MEMBER ANGLE 83.08 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 359. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND	
1	8.99	55.	46.	5	1.80 FT	10.50 IN	36.50 IN	8.000 x 0.2500	0.2500	8.000 x 0.2500	0.916	6.3 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D	
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. BENDING	INNER FL. BENDING	LOAD COND (KIPS)	FORCE ALLOW. (KIPS) T	
1	42.68	-139.20	14.36	33.00	24.84	3.86	-18.78	18.78	0.27	0.57	0.65	1	-22.15 36.09

RAFTER 2- 3 LENGTH 76.29 FT MEMBER ANGLE 10.53 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 3585. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	18.20	55.	46.	4	4.55 FT	36.50 IN	24.50 IN	8.000 x 0.5000	0.2500	8.000 x 0.3750	0.866 19.3 FT 1
2	20.00	55.	46.	4	5.00 FT	24.50 IN	36.50 IN	8.000 x 0.5000	0.1875	8.000 x 0.3750	1.002 26.8 FT 1
3	20.00	55.	46.	4	5.00 FT	36.50 IN	24.50 IN	8.000 x 0.3750	0.2500	8.000 x 0.3125	0.944 39.3 FT 1
4	15.29	55.	46.	3	5.10 FT	24.50 IN	36.50 IN	8.000 x 0.5000	0.2500	8.000 x 0.5000	1.075* 74.6 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D	
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. BENDING	INNER FL. BENDING	LOAD COND (KIPS)	FORCE ALLOW. (KIPS) T	
1	30.67	220.03	14.26	33.00	33.00	2.38	23.49	-27.16	0.17	0.70	0.82	1	28.90 36.47
2	28.68	304.56	16.27	32.39	33.00	2.34	27.80	-32.45	0.14	0.86	0.98	1	15.13 23.20
3	26.32	317.92	14.97	29.80	33.00	1.82	24.49	-26.16	0.12	0.82	0.79	1	-26.73 54.56
4	20.91	-526.75	19.86	33.00	32.31	1.24	-32.73	32.73	0.06	0.99	1.01	1	-41.28* 36.60

EXT.COLUMN 4- 3 LENGTH 24.26 FT MEMBER ANGLE 93.45 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 1189. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	22.51	55.	46.	12	1.88 FT	10.50 IN	40.50 IN	8.000 x 0.3750	0.2500	8.000 x 0.6250	1.001 14.1 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL FORCE (KIPS)	MOMENT (KIP-FT)	--ALLOWABLE STRESSES--			--MAXIMUM STRESSES--			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D	
			FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. BENDING	INNER FL. BENDING	LOAD COND (KIPS)	FORCE ALLOW. (KIPS) T	
1	41.32	-346.83	13.07	33.00	28.41	2.74	-33.06	25.75	0.21	1.00	0.79	1	-24.70 32.89

FRAME WEIGHT (EXCLUDING CONNECTIONS) IS 5133. LB

FLANGE BRACE REPORT

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Locate Flange Bracing Option: OFF

COLUMN 1 - 2

GIRTS LOCATED AT 8.00FT
BRACED AT X

RAFTER 2 - 3

PURLINS LOCATED AT	2.69FT	7.78FT	12.87FT	17.96FT	23.04FT	28.13FT	33.22FT	38.30FT	43.39FT	48.48FT
BRACED AT	X	X	X		X		X		X	
PURLINS LOCATED AT	53.57FT	58.65FT	63.74FT	68.83FT	73.89FT	76.30FT				
BRACED AT	X		X	X	X	X				

COLUMN 4 - 3

GIRTS LOCATED AT 15.00FT 19.00FT 23.00FT
BRACED AT X X

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SUPPORT JOINT 1 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 10.5000 (IN)
 OUTER FLANGE WIDTH 8.0000 (IN)
 INNER FLANGE WIDTH 8.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			WIND LOAD CRITICAL FORCES		
	LOAD CASE			LOAD CASE	
SHEAR	27.121 (KIPS)	1	SHEAR	27.838 (KIPS)	7
TENSION	0.000 (KIPS)	1	TENSION	34.766 (KIPS)	7
COMPRESSION	39.921 (KIPS)	1	COMPRESSION	32.036 (KIPS)	7
SHEAR & TENS ...	0.000 (KIPS)	1	SHEAR & TENS ...	78.617 (KIPS)	7

PINNED BASE CONNECTION DESIGN RESULTS: Successful Design

ALLOWABLE

WIND/SEISMIC ALLOWABLE

SHEAR	31.102 (KIPS)	SHEAR	41.365 (KIPS)
TENSION (acting alone)..	60.005 (KIPS)	TENSION (acting alone)..	79.806 (KIPS)
COMPRESSION	92.400 (KIPS)	COMPRESSION	92.400 (KIPS)

ANCHOR BOLTS (A307)

BASE PLATE

Y AND DIAMETER (4) 1.0000 (IN)	PLATE WIDTH	8.0000 (IN)
INTERIOR PITCH	PLATE THICKNESS	0.6250 (IN)
TYPICAL GAUGE	PLATE LENGTH	11.0000 (IN)
DISTANCE TO FIRST ROW		

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SUPPORT JOINT 4 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 10.5000 (IN)
 OUTER FLANGE WIDTH 8.0000 (IN)
 INNER FLANGE WIDTH 8.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			WIND LOAD CRITICAL FORCES		
	LOAD CASE			LOAD CASE	
SHEAR	27.115 (KIPS)	1	SHEAR	23.306 (KIPS)	5
TENSION	0.000 (KIPS)	1	TENSION	36.554 (KIPS)	5
COMPRESSION	40.453 (KIPS)	1	COMPRESSION	28.227 (KIPS)	5
SHEAR & TENS ...	0.000 (KIPS)	1	SHEAR & TENS ...	77.671 (KIPS)	5

PINNED BASE CONNECTION DESIGN RESULTS: Ran out of Plates for Width/Length

ALLOWABLE	WIND/SEISMIC ALLOWABLE
SHEAR 31.102 (KIPS)	SHEAR 41.365 (KIPS)
TENSION (acting alone).. 60.005 (KIPS)	TENSION (acting alone).. 79.806 (KIPS)
COMPRESSION 92.400 (KIPS)	COMPRESSION 92.400 (KIPS)

ANCHOR BOLTS (A307)	BASE PLATE
SIZE AND DIAMETER (2) 1.5000 (IN)	PLATE WIDTH 10.0000 (IN)
INTERIOR PITCH 5.0000 (IN)	PLATE THICKNESS 0.7500 (IN)
TYPICAL GAUGE 5.0000 (IN)	PLATE LENGTH 11.0000 (IN)
DISTANCE TO FIRST ROW 4.0000 (IN)	

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 1: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH

INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--				--BOLT QTY & DIAMETER--		
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
8.0000	0.6250	47.6875	55.0	1.1250	1.1250	4.0000	3.5000	(4) 0.8750	(4) 0.8750	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	36.0000	0.2500	8.0000	8.0000	0.2500	0.2500
RIGHT	35.6250	0.2500	8.0000	8.0000	0.5000	0.3750

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRying FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	155.389	5.379	7	0.000	320.059	361.064	Successful Design
INNER	244.086	13.531	2	0.000	319.311	364.301	Successful Design

NCI Building Systems, L.P.
 JOB#193681 SS 80/12 FL 3

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 3: INTERMEDIATE RAFTER SPLICE (4)

OUTER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

INNER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

-----CONNECTION PLATE-----				--EDGE DISTANCE--				--BOLT QTY & DIAMETER--		
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
8.0000	0.7500	36.6875	55.0	1.2500	1.2500	4.0000	3.5000	(6) 1.0000	(4) 1.0000	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	35.6250	0.1875	8.0000	8.0000	0.5000	0.3750
RIGHT	35.8125	0.2500	8.0000	8.0000	0.3750	0.3125

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRying FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	344.758	6.389	2	0.000	548.385	520.615	Successful Design
INNER	277.456	5.339	1	0.000	381.201	490.293	Successful Design

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 5: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH
 INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--		--BOLT QTY & DIAMETER--				
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
8.0000	1.0000	60.3750	55.0	1.6250	1.6250	4.0000	4.5000	(4) 1.2500	(6) 1.2500	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	39.5000	0.2500	8.0000	8.0000	0.3750	0.6250
RIGHT	35.5000	0.2500	8.0000	8.0000	0.5000	0.5000

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT	BOLT	YIELD ALLOW (KIP-FT)	RESULTS
				PRYING FORCE (KIPS)	RUPTURE ALLOW (KIP-FT)		
OUTER	499.250	4.101	1	0.000	828.130	1048.021	Successful Design
INNER	720.609	1.055	2	0.000	1183.412	1321.462	Successful Design

MEMBER WEIGHTS REPORT

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Member Identification	Member Weight (w/o Connections) (LB)	Weight of Connections (LB)	Total Member Weight (LB)
Ext. Column 1- 2	358.6	83.2	441.8
Rafter 2- 3	3585.5	329.4	3914.9
Ext. Column 4- 3	1188.7	160.3	1349.0
Totals:	5132.7	572.9	5705.7

MATERIALS REPORT

NCI Building Systems, L.P.
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Material Type and Size	Material Quantity	Material Weight (LB)
Flange Plates		
8.0 x 0.2500 (8B)	20.7 FT	140.9
8.0 x 0.5000 (8E)	73.3 FT	997.5
8.0 x 0.3750 (8D)	83.6 FT	853.1
8.0 x 0.3125 (8C)	20.0 FT	170.1
8.0 x 0.6250 (8F)	24.3 FT	412.8
	Subtotal	2574.5
Web Plates		
0.25000 (WB)	213.6 SQFT	2180.2
0.18750 (WA)	49.4 SQFT	378.0
	Subtotal	2558.2
Connection Plates		
8.0 x 0.6250	8.9 FT	150.8
8.0 x 0.7500	6.1 FT	124.9
8.0 x 1.0000	10.1 FT	273.9
10.0 x 0.7500	0.9 FT	23.4
	Subtotal	572.9

Total Weight 5705.7 LB

SECTION FAILURE SUMMARY

NCI Building Systems, L.P.
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Member Identification	Section Number	Maximum Combined Stress Ratio	Maximum Web Force Ratio	Web d/t Violation
Rafter	2- 3	4	1.075	1.128

CONNECTION FAILURE SUMMARY

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 3

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Member		
Identification	Connection Type/Location	Description
Ext. Column 4- 3	Base Plate	Ran out of Plates for Width/Length

Run End Date 04/10/2001 Time 08:31:02

```
*****
*
*           Auto/Steel Design           *
*  * A Synercom Technology, Inc. Development *
*           for NCI Building Systems    *
*           Release 7, MOD 1            *
*           2000.9.7.1                  *
*
*****
```

Run Start Date 04/06/2001 Time 17:11:58

TITLE - JOB#193681 SS 80/12 FL 1/8
PROJECT - 04/06/01
ENGR - MAC

TYPE - RIGID FRAME

UNITS OPTIONS

INPUT - English
OUTPUT - English

REPORT OPTIONS

ANCHOR BOLTS AND CONNECTIONS
FLANGE BRACE REPORT
DESIGN SUMMARY REPORT WITH DEFLECTIONS
SHORT OUTPUT

SOLUTION OPTIONS

EXECUTION MODE = ANALYSIS ONLY
MAXIMUM NUMBER OF ITERATIONS = 1
UNITY CHECK RANGE = 0.950 TO 1.035
MAXIMUM SEGMENT SIZE = 2.000 FT
COEF. OF LINEAR EXPANSION = 0.0000065000/DEG.F
MOD. OF ELASTICITY,E = 29000000. PSI
LOCATE FLANGE BRACING = NO

NCI Building Systems, L.P.
 JOB#193681 SS 80/12 FL 1/8

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JOB#193681 SS 80/12 FL 1/8
 MAC,04/06/01,,,,AC,FB,,DF,,,,SH
 3,1,,95,1.035,,,,N,,
 SPANS
 80.
 12,,,8,,10.5,,,36.5,,,,G
 8,,,
 6B,,,WA,,,6B,,,55,,,,,,,,,46.

36.5,24.5,36.5,24.5,36.5,2.25,8,,,,20402,P,
 8C,,,WB,,,8B,,,18.2,55.,46.
 8D,,,WA,,,8B,,,20.,55.,46.
 8C,,,WA,,,8B,,,20.,55.,46.
 8D,,,WB,,,8D,,,55.,46.
 5.,5.,5.,,X,X,X,X,X,,,

27,,,8,,10.5,,,36.5,,,,G
 15,,,19.,X,23,,,
 8C,,,WA,,,8E,,,55,,,,,,,,,46.

LOAD FACTORS,10.,150.

DEAD LOAD,.02

LIVE LOAD,.3

WIND LOAD,28.75,PSF,SPEC,.8,-1.4,-.7,-.5

CONDITIONS
 ,4,5,9,11

LOADCOND

LDCN,7,100.,DL,100.,LL,50.,WLR,,, DL + 1/2WLR + LL

LDCN,8,100.,DL,100.,WL4,,,, DL + EQL/1.4

LDCN,9,100.,DL,100.,WR4,,,, DL + EQR/1.4

LOADS

LOAD,2,3,LL,GLOB,Y,UNIF,,-.291

LOAD,2,3,WL4,GLOB,X,CONC,,4.6,,,EQL

LOAD,2,3,WR4,GLOB,X,CONC,,4.6,,,EQR

END

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 1/8

CYCLE 1
04/06/2001

SPAN LENGTHS

80.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0

LEFT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R
12.000	0.000	8.000	10.500	0.000	0.000	36.500	0.00	0.00	0.00	G	0.00

GIRT AND BRACE LOCATIONS

8.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6B	WA	6B	55.00					0.00	46.00

RAFTER AT LEFT KNEE

36.500 24.500 36.500 24.500 36.500 2.250 8.000 0.000 0.0 20402 P 0

SECTION 1 FOR RAFTER

SECTION 1 FOR RAFTER				SECT FLANGE		WEB
/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8C	WB	8B	18.20	55.00	46.00	0.00

SECTION 2 FOR RAFTER

SECTION 2 FOR RAFTER				SECT FLANGE		WEB
/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8D	WA	8B	20.00	55.00	46.00	0.00

SECTION 3 FOR RAFTER

SECTION 3 FOR RAFTER				SECT FLANGE		WEB
/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8C	WA	8B	20.00	55.00	46.00	0.00

SECTION 4 FOR RAFTER

SECTION 4 FOR RAFTER				SECT FLANGE		WEB
/OUTER FLANGE-/	-----WEB-----	/-INNER FLANGE-/	LENGTH	FY	FY	Kx
8D	WB	8D	0.00	55.00	46.00	0.00

PURLIN AND BRACE LOCATIONS

5.000 5.000 5.000 X X X X X 0

RIGHT EXTERIOR COLUMN

EAVE	WALL	GIRT	BASE	MID	MID	KNEE	BASE	TEMP	BASE	F	G
HEIGHT	SLOPE	SIZE	DEPTH	DEPTH	DIST.	DEPTH	SETTLE	DIFF	DISPL	X	R
27.000	0.000	8.000	10.500	0.000	0.000	36.500	0.00	0.00	0.00	G	0.00

GIRT AND BRACE LOCATIONS

15.000	19.000	23.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8C	WA	8E	55.00					0.00	46.00

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 1/8

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FACTORS 10.000 150.000
DEAD LOAD 0.020 0.000 0.000 0.000 0.000
LIVE LOAD 0.300 0.000 0.000 0.000 0.000
WIND LOAD 28.750 PSF SPEC 0.800-1.400-0.700-0.500

LOAD CONDITIONS 0
1 2 4 5 911 0 0 0 0 0 0 0 0 0.00 0.00 0.00 0.00 0

LOADCOND

LDCN 7100.00 DL 100.00 LL 50.00 WLR 0.00 DL + 1/2WLR + LL
LDCN 8100.00 DL 100.00 WL4 0.00 0.00 DL + EQL/1.4
LDCN 9100.00 DL 100.00 WR4 0.00 0.00 DL + EQR/1.4

LOADS

LOADS 0
LOAD 2 3 LL GLOB Y UNIF 0.000 -0.291 0.000 0.000
LOAD 2 3 WL4 GLOB X CONC 0.000 4.600 0.000 0.000 EQL
LOAD 2 3 WR4 GLOB X CONC 0.000 -4.600 0.000 0.000 EQR
LOAD 1 2 DL GLOB Y UNIF 0.00000 -0.02595 0.00000 -0.02595 DLWT
LOAD 1 2 WLL GLOB X UNIF 0.00000 0.26764 10.31250 0.26764 WLLX
LOAD 1 2 WLR GLOB X UNIF 0.00000 -0.16727 10.31250 -0.16727 WLRX
LOAD 2 3 LL GLOB Y UNIF 0.00000 -0.31370 0.00000 -0.31370 LIVE
LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.02091 0.00000 -0.02091 DEAD
LOAD 2 3 DL GLOB Y UNIF 0.00000 -0.03918 0.00000 -0.03918 DLWT
LOAD 2 3 WLL GLOB X UNIF 0.00000 -0.07892 76.50634 -0.07892 WLLX
LOAD 2 3 WLL GLOB Y UNIF 0.00000 0.42088 76.50634 0.42088 WLLY
LOAD 2 3 WLR GLOB X UNIF 0.00000 -0.03946 76.50634 -0.03946 WLRX
LOAD 2 3 WLR GLOB Y UNIF 0.00000 0.21044 76.50634 0.21044 WLRX
LOAD 4 3 DL GLOB Y UNIF 0.00000 -0.03718 0.00000 -0.03718 DLWT
LOAD 4 3 WLL GLOB X UNIF 0.00000 0.15975 24.29579 0.15975 WLLX
LOAD 4 3 WLR GLOB X UNIF 0.00000 -0.25560 24.29579 -0.25560 WLRX
END

LOAD CONDITION ARRAY

1	DL	100.	LL	100.	0.	0.
2	DL	100.	WLL	100.	0.	0.
3	DL	100.	LL	50.	WLL	100.
4	DL	100.	WLL	50.	LL	100.
5	DL	100.	WLR	100.	0.	0.
6	DL	100.	LL	50.	WLR	100.
7	DL	100.	LL	100.	WLR	50.
8	DL	100.	WL4	100.	0.	0.
9	DL	100.	WR4	100.	0.	0.

LOAD CONDITION DESCRIPTIONS

1 DEAD + LIVE LOAD
2 DL + WLL
3 DL + 1/2LL + WLL
4 DL + 1/2WLL + LL
5 DL + WLR
6 DL + 1/2LL + WLR
7 DL + 1/2WLR + LL
8 DL + EQL/1.4
9 DL + EQR/1.4

FRAME DESIGN DATA

NCI Building Systems, L.P.
JOB#193681 SS 80/12 FL 1/8

04/06/2001

CONFIGURATION (NON-SYMMETRIC FRAME) ...

BUILDING WIDTH = 80.00 FT
NUMBER OF SPANS = 1
SPAN WIDTHS (FT) = 80.00
DESIGN BAY SIZE = 10.00 FT
LEFT EAVE HEIGHT = 12.00 FT
RIGHT EAVE HEIGHT = 27.00 FT
LEFT COLUMN SLOPE = 0.00 /12
LEFT RAFTER SLOPE = 2.25 /12
RIGHT RAFTER SLOPE = 2.25 /12
RIGHT COLUMN SLOPE = 0.00 /12
GIRT DEPTH = 8.00 IN
PURLIN DEPTH = 8.00 IN

LOADINGS ...

DEAD LOAD = 2.000 PSF
LIVE LOAD = 30.000 PSF
WIND LOAD = 28.750 PSF

WIND LOAD PARAMETERS ...

WIND LOAD METHOD = SPEC
WIND INTENSITY = 28.75 PSF
ROOF HEIGHT = 19.50 FT
LEFT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLL
WIND RIGHT COEFFICIENTS = 0.80 -1.40 -0.70 -0.50 FOR WLR

LOAD CONDITIONS ...

LOAD CONDITION 1 = DEAD + LIVE LOAD
LOAD CONDITION 2 = DL + WLL
LOAD CONDITION 3 = DL + 1/2LL + WLL
LOAD CONDITION 4 = DL + 1/2WLL + LL
LOAD CONDITION 5 = DL + WLR
LOAD CONDITION 6 = DL + 1/2LL + WLR
LOAD CONDITION 7 = DL + 1/2WLR + LL
LOAD CONDITION 8 = DL + EQL/1.4
1. 4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2
LOAD CONDITION 9 = DL + EGR/1.4
1. -4.60 (KIPS) CONCENTRATED LOAD APPLIED IN GLOBAL X DIRECTION TO MEMBER 2- 3 AT 0.00 FT FROM JOINT 2

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 1 - DEAD + LIVE LOAD

ON JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	25.716	17.057	0.000	0.000	0.000
2	2				-0.169	1.262
3					-3.080	1.881
4					-3.705	1.968
5					-1.790	1.554
6	3				0.041	1.260
7	4	26.300	-17.056	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 2 - DL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-12.961	-8.964	0.000	0.000	0.000
2	2				0.112	-0.852
3					1.862	-1.226
4					2.135	-1.263
5					0.965	-1.010
6	3				-0.031	-0.849
7	4	-13.463	8.358	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 3 - DL + 1/2LL + WLL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-1.389	-1.217	0.000	0.000	0.000
2	2				0.035	-0.277
3					0.461	-0.370
4					0.450	-0.368
5					0.151	-0.303
6	3				-0.012	-0.276
7	4	-1.910	0.612	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 4 - DL + 1/2WLL + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	17.950	11.794	0.000	0.000	0.000
2	2				-0.106	0.780
3					-2.010	1.183
4					-2.470	1.248
5					-1.227	0.979
6	3				0.024	0.779
7	4	17.972	-12.096	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 5 - DL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	-3.715	2.311	0.000	0.000	0.000
2	2				0.097	-0.780
3					1.193	-1.018
4					1.192	-1.017
5					0.467	-0.865
6	3				-0.034	-0.786
7	4	-6.613	8.642	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 6 - DL + 1/2LL + WLR

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	7.857	10.059	0.000	0.000	0.000
2	2				0.020	-0.205
3					-0.208	-0.162
4					-0.494	-0.122
5					-0.347	-0.158
6	3				-0.015	-0.212
7	4	4.940	0.895	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 7 - DL + 1/2WLR + LL

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	22.573	17.432	0.000	0.000	0.000
2	2				-0.113	0.816
3					-2.345	1.287
4					-2.942	1.371
5					-1.476	1.051
6	3				0.022	0.810
7	4	21.397	-11.954	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 8 - DL + EQL/1.4

SECTION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	1.968	-1.980	0.000	0.000	0.000
2	2				-0.050	0.402
3					-0.539	0.506
4					-0.487	0.496
5					-0.149	0.423
	3				0.017	0.396
	4	3.799	-2.619	0.000	0.000	0.000

FRAME REACTIONS AND DEFLECTIONS - LOAD CONDITION 9 - DL + EQR/1.4

ION JOINT NUMBER	MEMBER JOINT NUMBER	VERTICAL REACTION (KIPS)	HORIZONTAL REACTION (KIPS)	MOMENT REACTION (KIP-FT)	VERTICAL DEFLECTION (IN)	HORIZONTAL DEFLECTION (IN)
1	1	3.178	5.105	0.000	0.000	0.000
2	2				0.019	-0.175
3					-0.016	-0.168
4					-0.182	-0.142
5					-0.174	-0.143
6	3				-0.011	-0.169
7	4	2.589	-0.505	0.000	0.000	0.000

DESIGN SUMMARY REPORT

NCI Building Systems, L.P.
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EXT.COLUMN 1- 2 LENGTH 10.31 FT MEMBER ANGLE 83.08 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 268. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	8.99	55.	46. 5	1.80 FT	10.50 IN	36.50 IN	6.000 x 0.2500	0.1875	6.000 x 0.2500	0.759	6.3 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL		--ALLOWABLE STRESSES--			--MAXIMUM STRESSES---			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D	
	FORCE (KIPS)	MOMENT (KIP-FT)	FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS) T
1	27.42	-87.09	11.80	33.00	27.98	3.31	-15.66	15.66	0.28	0.47 0.48	1	-13.86	15.22

RAFTER 2- 3 LENGTH 76.51 FT MEMBER ANGLE 10.56 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 2997. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	18.20	55.	46. 4	4.55 FT	36.50 IN	24.50 IN	8.000 x 0.3125	0.2500	8.000 x 0.2500	0.902	19.3 FT 1
2	20.00	55.	46. 4	5.00 FT	24.50 IN	36.50 IN	8.000 x 0.3750	0.1875	8.000 x 0.2500	0.900	26.8 FT 1
3	20.00	55.	46. 4	5.00 FT	36.50 IN	24.50 IN	8.000 x 0.3125	0.1875	8.000 x 0.2500	0.919	39.3 FT 1
4	15.63	55.	46. 3	5.21 FT	24.50 IN	36.50 IN	8.000 x 0.3750	0.2500	8.000 x 0.3750	0.903	74.9 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL		--ALLOWABLE STRESSES--			--MAXIMUM STRESSES---			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D	
	FORCE (KIPS)	MOMENT (KIP-FT)	FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS) T
1	19.36	147.17	12.76	28.93	33.00	1.85	21.92	-24.00	0.14	0.76 0.73	1	19.43	36.15
2	18.07	201.92	15.77	29.56	33.00	1.75	23.34	-28.10	0.11	0.79 0.85	1	9.78	22.96
3	16.56	210.94	13.19	24.98	33.00	1.47	20.16	-21.96	0.11	0.81 0.67	1	-17.11	22.90
	13.09	-338.51	18.21	33.00	29.81	0.88	-25.48	25.48	0.05	0.77 0.85	1	-26.69	36.34

EXT.COLUMN 4- 3 LENGTH 24.30 FT MEMBER ANGLE 92.99 DEG TEMP DIFF 0. DEG.F RELEASES 0 WEIGHT 903. LB

SECTION NO.	LENGTH (FT)	YIELD FLG	NO. SEG	DEPTH AT START	DEPTH AT END	OUTER FLANGE OR SECTION	WEB THICKNESS	INNER FLANGE	MAX COMB UNITY CK	AT DIST	LOAD COND
1	22.56	55.	46. 12	1.88 FT	10.50 IN	36.50 IN	8.000 x 0.3125	0.1875	8.000 x 0.5000	0.926	22.6 FT 1

(CONTROLLING ACTIONS)

SECTION NO.	AXIAL		--ALLOWABLE STRESSES--			--MAXIMUM STRESSES---			--UNITY CHECK COMPONENTS--			----WEB SHEAR----- D	
	FORCE (KIPS)	MOMENT (KIP-FT)	FA (KSI)	FBO (KSI)	FBI (KSI)	AXIAL (KSI)	FBO (KSI)	FBI (KSI)	OUTER FL. AXIAL	INNER FL. BENDING	LOAD COND	FORCE (KIPS)	ALLOW. (KIPS) T
1	26.32	-353.83	16.87	33.00	30.83	1.99	-30.98	24.91	0.12	0.94 0.81	1	-15.70	15.36

FRAME WEIGHT (EXCLUDING CONNECTIONS) IS 4168. LB

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Locate Flange Bracing Option: OFF

COLUMN 1 - 2

GIRTS LOCATED AT 8.00FT
BRACED AT X

RAFTER 2 - 3

PURLINS LOCATED AT 2.70FT 7.79FT 12.87FT 17.96FT 23.05FT 28.13FT 33.22FT 38.31FT 43.40FT 48.48FT
BRACED AT X X X X X X X

PURLINS LOCATED AT 53.57FT 58.66FT 63.74FT 68.83FT 73.90FT 76.51FT
BRACED AT X X X X X

COLUMN 4 - 3

GIRTS LOCATED AT 15.00FT 19.00FT 23.00FT
BRACED AT X X

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SUPPORT JOINT 1 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 10.5000 (IN)
 OUTER FLANGE WIDTH 6.0000 (IN)
 INNER FLANGE WIDTH 6.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			WIND LOAD CRITICAL FORCES		
	LOAD CASE			LOAD CASE	
SHEAR	17.057 (KIPS)	1	SHEAR	17.432 (KIPS)	7
TENSION	0.000 (KIPS)	1	TENSION	12.961 (KIPS)	7
COMPRESSION	25.716 (KIPS)	1	COMPRESSION	22.573 (KIPS)	7
SHEAR & TENS ...	0.000 (KIPS)	1	SHEAR & TENS ...	29.096 (KIPS)	7

PINNED BASE CONNECTION DESIGN RESULTS: Successful Design

ALLOWABLE

SHEAR 17.495 (KIPS)
 TENSION (acting alone).. 33.754 (KIPS)
 COMPRESSION 69.300 (KIPS)

WIND/SEISMIC ALLOWABLE

SHEAR 23.269 (KIPS)
 TENSION (acting alone).. 44.892 (KIPS)
 COMPRESSION 69.300 (KIPS)

ANCHOR BOLTS (A307)

QUANTITY AND DIAMETER (4) 0.7500 (IN)
 INTERIOR PITCH 4.0000 (IN)
 TYPICAL GAUGE 4.0000 (IN)
 DISTANCE TO FIRST ROW 4.0000 (IN)

BASE PLATE

PLATE WIDTH 6.0000 (IN)
 PLATE THICKNESS 0.3750 (IN)
 PLATE LENGTH 11.0000 (IN)

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SUPPORT JOINT 4 -- EXTERIOR COLUMN

COLUMN BASE SIZES

SECTION DEPTH 10.5000 (IN)
 OUTER FLANGE WIDTH 8.0000 (IN)
 INNER FLANGE WIDTH 8.0000 (IN)

NON-WIND LOAD CRITICAL FORCES			WIND LOAD CRITICAL FORCES		
	LOAD CASE			LOAD CASE	
SHEAR	17.056 (KIPS)	1	SHEAR	12.096 (KIPS)	4
TENSION	0.000 (KIPS)	1	TENSION	13.463 (KIPS)	4
COMPRESSION	26.300 (KIPS)	1	COMPRESSION	21.397 (KIPS)	4
SHEAR & TENS ...	0.000 (KIPS)	1	SHEAR & TENS ...	28.508 (KIPS)	4

PINNED BASE CONNECTION DESIGN RESULTS: Successful Design

ALLOWABLE

SHEAR 17.495 (KIPS)
 TENSION (acting alone).. 33.754 (KIPS)
 COMPRESSION 92.400 (KIPS)

WIND/SEISMIC ALLOWABLE

SHEAR 23.269 (KIPS)
 TENSION (acting alone).. 44.892 (KIPS)
 COMPRESSION 92.400 (KIPS)

ANCHOR BOLTS (A307)

QUANTITY AND DIAMETER (4) 0.7500 (IN)
 INTERIOR PITCH 4.0000 (IN)
 TYPICAL GAUGE 4.0000 (IN)
 DISTANCE TO FIRST ROW 4.0000 (IN)

BASE PLATE

PLATE WIDTH 8.0000 (IN)
 PLATE THICKNESS 0.3750 (IN)
 PLATE LENGTH 11.0000 (IN)

NCI Building Systems, L.P.
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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 1: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH

INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--		--BOLT QTY & DIAMETER--				
WIDTH	THICK.	LENGTH	YIELD	OUT.FLG	IN. FLG	PITCH	GAUGE	OUTER FLG.	INNER FLG.	BOLT
(IN)	(IN)	(IN)	(KSI)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	TYPE
8.0000	0.3750	47.4375	55.0	0.8750	0.8750	4.0000	3.0000	(4) 0.6250	(4) 0.6250	A325

SEGMENT	DESIGN	WEB	--FLANGE WIDTH--		--FLANGE THICK.--	
	DEPTH	THICK.	OUTER	INNER	OUTER	INNER
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)
LEFT	36.0000	0.1875	6.0000	6.0000	0.2500	0.2500
RIGHT	35.9375	0.2500	8.0000	8.0000	0.3125	0.2500

DESIGN DATA:

FLANGE	ADJUSTED	ASSOCIATED	LOAD	BOLT	BOLT	YIELD	RESULTS
	MOMENT	SHEAR		PRYING	RUPTURE		
	(KIP-FT)	(KIPS)	COND	FORCE	ALLOW	ALLOW	
OUTER	92.070	4.828	7	0.000	166.934	143.469	Successful Design
INNER	88.233	5.352	2	0.000	166.737	144.145	Successful Design

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 3: INTERMEDIATE RAFTER SPLICE (4)

OUTER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

INNER FLANGE: EXTENDED (1 ROW OUTSIDE OF THE FLANGE)

-----CONNECTION PLATE-----				--EDGE DISTANCE--		--BOLT QTY & DIAMETER--				
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
8.0000	0.6250	36.5625	55.0	1.1250	1.1250	4.0000	3.5000	(4) 0.8750	(4) 0.8750	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	35.8750	0.1875	8.0000	8.0000	0.3750	0.2500
RIGHT	35.9375	0.1875	8.0000	8.0000	0.3125	0.2500

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRying FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	133.639	2.427	2	0.000	291.458	348.110	Successful Design
INNER	185.500	3.398	1	0.000	291.301	340.514	Successful Design

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CONNECTION DESIGN DATA FOR MEMBER 2- 3 AT DEPTH 5: DIAGONAL KNEE SPLICE (2)

OUTER FLANGE: FLUSH

INNER FLANGE: FLUSH

-----CONNECTION PLATE-----				--EDGE DISTANCE--				--BOLT QTY & DIAMETER--		
WIDTH (IN)	THICK. (IN)	LENGTH (IN)	YIELD (KSI)	OUT.FLG (IN)	IN. FLG (IN)	PITCH (IN)	GAUGE (IN)	OUTER FLG. (IN)	INNER FLG. (IN)	BOLT TYPE
8.0000	0.6250	57.0625	55.0	1.2500	1.2500	4.0000	3.5000	(4) 1.0000	(4) 1.0000	A325

SEGMENT	DESIGN DEPTH (IN)	WEB THICK. (IN)	--FLANGE WIDTH--		--FLANGE THICK.--	
			OUTER (IN)	INNER (IN)	OUTER (IN)	INNER (IN)
LEFT	35.6875	0.1875	8.0000	8.0000	0.3125	0.5000
RIGHT	35.7500	0.2500	8.0000	8.0000	0.3750	0.3750

DESIGN DATA:

FLANGE	ADJUSTED MOMENT (KIP-FT)	ASSOCIATED SHEAR (KIPS)	LOAD COND	BOLT PRYING FORCE (KIPS)	BOLT RUPTURE ALLOW (KIP-FT)	YIELD ALLOW (KIP-FT)	RESULTS
OUTER	321.302	4.679	1	0.000	517.309	445.330	Successful Design
INNER	269.515	0.741	2	0.000	517.092	446.209	Successful Design

MEMBER WEIGHTS REPORT

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Member Identification	Member Weight (w/o Connections) (LB)	Weight of Connections (LB)	Total Member Weight (LB)
Ext. Column 1- 2	267.6	47.4	315.0
Rafter 2- 3	2997.2	225.0	3222.2
Ext. Column 4- 3	903.4	90.3	993.7
Totals:	4168.2	362.7	4530.8

MATERIALS REPORT

NCI Building Systems, L.P.
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Material Type and Size	Material Quantity	Material Weight (LB)
Flange Plates		
6.0 x 0.2500 (6B)	20.6 FT	105.3
8.0 x 0.3125 (8C)	63.6 FT	541.1
8.0 x 0.2500 (8B)	59.3 FT	403.7
8.0 x 0.3750 (8D)	54.4 FT	555.2
8.0 x 0.5000 (8E)	24.3 FT	330.7
	Subtotal	1935.9
Web Plates		
0.18750 (WA)	168.7 SQFT	1291.6
0.25000 (WB)	92.1 SQFT	940.7
	Subtotal	2232.3
Connection Plates		
6.0 x 0.3750	0.9 FT	7.0
8.0 x 0.3750	8.8 FT	90.1
8.0 x 0.6250	15.6 FT	265.5
	Subtotal	362.7
Total Weight		4530.8 LB

SECTION FAILURE SUMMARY

NCI Building Systems, L.P.
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Member Identification	Section Number	Maximum Combined Stress Ratio	Maximum Web Force Ratio	Web d/t Violation
No sections failed				

CONNECTION FAILURE SUMMARY

NCI Building Systems, L.P.
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Member	Identification	Connection Type/Location	Description
No connections failed			

Run End Date 04/06/2001 Time 17:12:03



PITTSBURGH TESTING LABORATORY

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ESTABLISHED 1911

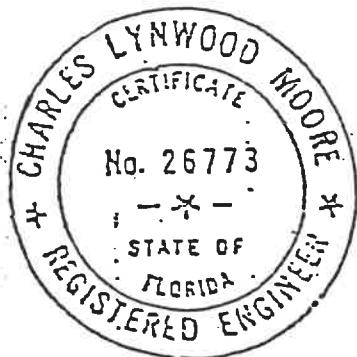
1450 LANE AVENUE NORTH, JACKSONVILLE, FLORIDA 32205

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AREA CODE (904) 723-4200

FLO-LOC TM Cat. No.	ERS STRAND -Per ASTM-A475- Size	EYEBOLT Size	MIN. ASSEMBLY Breaking Strength (Pounds) *
FWC 250 BA	1/4"	1/2"	6,650
FWC 312 BA	5/16"	5/8"	11,200
FWC 375 BA	3/8"	5/8"	15,400
FWC 437 EA	7/16"	3/4"	20,800
FWC 500 EA	1/2"	7/8"	26,900

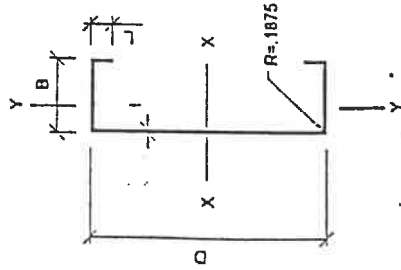
Tests were conducted using the Flo-Loc Strand Grips, FWC ERS strand and FWC eyebolts as set forth in the above table with all tested assemblies providing at least 100% of the strand rated breaking load per ASTM-A475.



Certified PITTSBURGH TESTING LABORATORY

Charles L. Moore
Charles L. Moore, P. E.

*FWC guarantees that all cross brace assemblies fabricated in accordance with the above table will meet or exceed the specified minimum assembly breaking strength.



NOTES:

Section properties and allowables are computed in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x and I_y are for deflection determination
- S_x and S_y are for bending
- $F_y = 57.0$ KSI
- $F_u = 70.0$ KSI

GENERAL DATA

SECTION PROPERTIES

Section Name	DIMENSIONAL PROPERTIES						ALLOWABLES		AXIS X-X			AXIS Y-Y		
	D x B (in)	Gage	Thick (in)	Weight lb /lf	Area (in2)	Lip (in)	M _a (ft - k)	V _a (kips)	I _x (in ⁴)	S _{xx} (in ³)	R _x (in)	I _y (in ⁴)	S _{yy} (in ³)	R _y (in)
8 x 2.5 C16	8 x 2.5	16	0.059	2.996	0.822	0.773	4.744	2.332	7.791	1.668	3.078	0.675	0.335	0.906
8 x 2.5 C15	8 x 2.5	15	0.065	3.080	0.906	0.788	5.415	3.124	8.566	1.904	3.075	0.743	0.375	0.906
8 x 2.5 C14	8 x 2.5	14	0.070	3.317	0.976	0.800	5.827	3.907	9.210	2.049	3.072	0.800	0.408	0.906
8 x 2.5 C13	8 x 2.5	13	0.085	4.028	1.185	0.836	7.683	7.023	11.126	2.701	3.065	0.970	0.511	0.905
8 x 2.5 C12	8 x 2.5	12	0.105	4.976	1.463	0.885	9.705	12.661	13.649	3.412	3.054	1.196	0.649	0.904
10 x 2.5 C16	10 x 2.5	16	0.059	3.197	0.940	0.773	5.863	1.842	13.256	2.061	3.755	0.719	0.336	0.875
10 x 2.5 C15	10 x 2.5	15	0.065	3.522	1.036	0.788	6.830	2.466	14.582	2.401	3.752	0.792	0.376	0.874
10 x 2.5 C14	10 x 2.5	14	0.070	3.793	1.116	0.800	7.608	3.083	15.685	2.675	3.750	0.853	0.410	0.874
10 x 2.5 C13	10 x 2.5	13	0.085	4.606	1.355	0.836	10.489	5.538	18.973	3.688	3.742	1.035	0.513	0.874
10 x 2.5 C12	10 x 2.5	12	0.105	5.690	1.673	0.885	13.263	10.483	23.316	4.663	3.733	1.277	0.654	0.874
12 x 2.5 C16	12 x 2.5	16	0.059	3.598	1.058	0.773	6.997	1.522	20.601	2.460	4.412	0.754	0.337	0.844
12 x 2.5 C15	12 x 2.5	15	0.065	3.964	1.166	0.788	8.119	2.037	22.670	2.855	4.410	0.830	0.377	0.844
12 x 2.5 C14	12 x 2.5	14	0.070	4.269	1.256	0.800	9.014	2.546	24.391	3.169	4.407	0.894	0.411	0.844
12 x 2.5 C13	12 x 2.5	13	0.085	5.184	1.525	0.836	13.385	4.571	29.529	4.706	4.401	1.085	0.515	0.844
12 x 2.5 C12	12 x 2.5	12	0.105	6.404	1.883	0.885	17.222	8.646	36.329	6.055	4.392	1.340	0.657	0.843



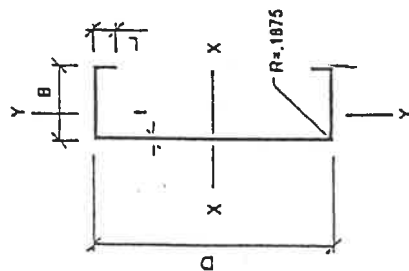
Section properties and allowables are computed in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x and I_y are for deflection determination
- S_x and S_y are for bending
- $F_y = 57.0$ KSI
- $F_u = 70.0$ KSI

GENERAL DATA

SECTION PROPERTIES

[illegible]



NOTES:

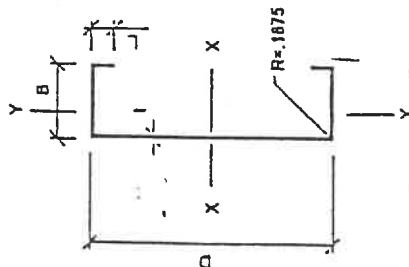
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- $F_u = 70.0 \text{ KSI}$

GENERAL DATA

SECTION PROPERTIES

Section Name	DIMENSIONAL PROPERTIES						ALLOWABLES		AXIS X-X			AXIS Y-Y		
	D x B (in)	Gage	Thick (in)	Weight lb / ft	Area (in ²)	Lip (in)	M _s (ft - k)	V _s (kips)	I _x (in ⁴)	S _x (in ³)	R _x (in)	I _y (in ⁴)	S _y (in ³)	R _y (in)
8 x 3.5 C16	8 x 3.5	16	0.059	3.197	0.940	0.773	4.870	2.332	9.852	1.712	3.204	1.523	0.548	1.273
8 x 3.5 C15	8 x 3.5	15	0.065	3.522	1.036	0.787	5.714	3.124	10.612	2.009	3.201	1.678	0.614	1.273
8 x 3.5 C14	8 x 3.5	14	0.070	3.793	1.116	0.800	6.402	3.907	11.411	2.251	3.198	1.808	0.670	1.273
8 x 3.5 C13	8 x 3.5	13	0.085	4.606	1.355	0.836	8.092	7.023	13.789	2.845	3.190	2.196	0.841	1.273
8 x 3.5 C12	8 x 3.5	12	0.105	5.690	1.673	0.885	10.164	12.661	16.921	3.574	3.180	2.712	1.074	1.273
10 x 3.5 C16	10 x 3.5	16	0.059	3.598	1.058	0.773	6.071	1.842	16.171	2.134	3.909	1.633	0.550	1.242
10 x 3.5 C15	10 x 3.5	15	0.065	3.964	1.166	0.787	7.102	2.466	17.790	2.497	3.906	1.800	0.617	1.243
10 x 3.5 C14	10 x 3.5	14	0.070	4.269	1.256	0.800	8.033	3.083	19.136	2.824	3.904	1.939	0.673	1.243
10 x 3.5 C13	10 x 3.5	13	0.085	5.184	1.525	0.836	11.022	5.538	23.151	3.875	3.897	2.356	0.845	1.243
10 x 3.5 C12	10 x 3.5	12	0.105	6.404	1.893	0.885	13.827	10.483	28.456	4.861	3.887	2.912	1.082	1.243
12 x 3.5 C16	12 x 3.5	16	0.059	4.000	1.176	0.773	7.279	1.522	24.808	2.559	4.592	1.721	0.552	1.210
12 x 3.5 C15	12 x 3.5	15	0.065	4.406	1.296	0.787	8.494	2.037	27.299	2.966	4.590	1.897	0.618	1.210
12 x 3.5 C14	12 x 3.5	14	0.070	4.745	1.396	0.800	9.506	2.546	29.372	3.370	4.588	2.044	0.675	1.210
12 x 3.5 C13	12 x 3.5	13	0.085	5.762	1.695	0.836	13.204	4.571	35.563	4.674	4.581	2.484	0.849	1.211
12 x 3.5 C12	12 x 3.5	12	0.105	7.118	2.093	0.885	17.900	8.646	43.758	6.293	4.572	3.071	1.088	1.211



NOTES:

Section properties and allowables are computed in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x and I_y are for deflection determination
- S_x and S_y are for bending
- $F_y = 57.0 \text{ KSI}$
- $F_u = 70.0 \text{ KSI}$

GENERAL DATA

SECTION PROPERTIES

[illegible]



Section properties and allowables are computed in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x and I_y are for deflection determination
- S_x and S_y are for bending
- $F_y = 57.0 \text{ KSI}$
- $F_u = 70.0 \text{ KSI}$

GENERAL DATA

SECTION PROPERTIES

[illegible]



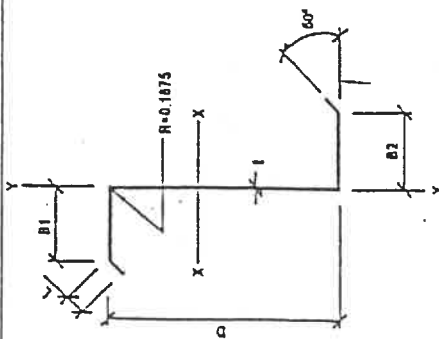
Section properties and allowables are computed in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x and I_y are for deflection determination
- S_x and S_y are for bending
- $F_y = 57.0 \text{ KSI}$
- $F_u = 70.0 \text{ KSI}$

GENERAL DATA

SECTION PROPERTIES

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NOTES:

Section properties and allowables are computed in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

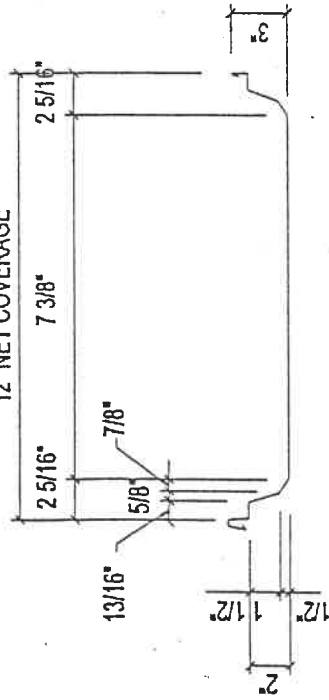
- I_x and I_y are for deflection determination
- S_x and S_y are for bending
- $F_y = 57.0$ KSI
- $F_u = 70.0$ KSI

GENERAL DATA

SECTION PROPERTIES

Section Name	DIMENSIONAL PROPERTIES						ALLOWABLES		AXIS X-X			AXIS Y-Y		
	D x B1 x B2 (in)	Gage	Thick (in)	Weight lb/lf	Area (in ²)	Lip (in)	M _x (ft-k)	V _x (kips)	I _x (in ⁴)	S _{xx} (in ³)	R _{xx} (in)	I _y (in ⁴)	S _{yy} (in ³)	R _y (in)
10 x 3Z16	10 x 3.125 x 3.375	16	0.059	3.598	1.058	0.911	6.348	1.842	16.131	2.232	3.904	2.582	0.488	1.562
10 x 3Z15	10 x 3.125 x 3.375	15	0.065	3.946	1.166	0.922	7.361	2.466	17.749	2.588	3.902	2.852	0.532	1.564
10 x 3Z14	10 x 3.125 x 3.375	14	0.070	4.269	1.256	0.930	8.269	3.083	19.094	2.907	3.900	3.077	0.570	1.566
10 x 3Z13	10 x 3.125 x 3.375	13	0.085	5.184	1.525	0.956	11.185	5.538	23.112	3.933	3.893	3.759	0.698	1.570
10 x 3Z12	10 x 3.125 x 3.375	12	0.105	6.404	1.883	0.990	14.029	10.483	28.427	4.932	3.885	4.681	0.956	1.577
12 x 3Z16	12 x 3.125 x 3.375	16	0.059	4.000	1.176	0.911	7.608	1.522	24.759	2.675	4.588	2.583	0.490	1.482
12 x 3Z15	12 x 3.125 x 3.375	15	0.065	4.406	1.296	0.922	8.806	2.037	27.250	3.096	4.586	2.852	0.534	1.484
12 x 3Z14	12 x 3.125 x 3.375	14	0.070	4.745	1.396	0.930	9.869	2.546	29.321	3.470	4.584	3.078	0.573	1.485
12 x 3Z13	12 x 3.125 x 3.375	13	0.085	5.762	1.695	0.956	13.462	4.571	35.515	4.733	4.578	3.760	0.701	1.490
12 x 3Z12	12 x 3.125 x 3.375	12	0.105	7.118	2.093	0.990	18.129	8.646	43.722	6.374	4.570	4.682	0.959	1.495
14 x 3Z16	14 x 3.125 x 3.375	16	0.059	4.401	1.294	0.911	8.873	1.296	35.739	3.120	5.255	2.583	0.490	1.413
14 x 3Z15	14 x 3.125 x 3.375	15	0.065	4.848	1.426	0.922	10.256	1.735	39.342	3.606	5.253	2.853	0.535	1.414
14 x 3Z14	14 x 3.125 x 3.375	14	0.070	5.221	1.536	0.930	11.479	2.169	42.339	4.036	5.251	3.078	0.575	1.416
14 x 3Z13	14 x 3.125 x 3.375	13	0.085	6.340	1.865	0.956	15.572	3.891	51.307	7.240	5.246	3.760	0.704	1.420
14 x 3Z12	14 x 3.125 x 3.375	12	0.105	7.832	2.303	0.990	22.092	7.357	63.204	7.767	5.238	4.682	0.961	1.426

12" NET COVERAGE



12" Ultra-Dek & Double-Lok Panels

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

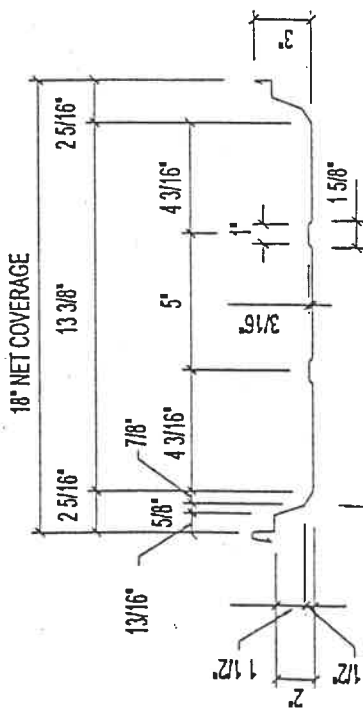
- I_x is for deflection determination
- S_x is for bending
- M_a is allowable bending moment
- The panel weight has been deducted from the allowable loads
- Values shown for wind load deflection are limited by a maximum deflection ratio of $L/120$
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- Load table values do not include web crippling requirements

PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (Fy)			PANEL BOTTOM IN COMPRESSION (Fy)		
				I_x in^4/ft	S_x in^3/ft	M_a $\text{in-kip}/\text{ft}$	I_x in^4/ft	S_x in^3/ft	M_a $\text{in-kip}/\text{ft}$
24	0.0223	1.34	50.0	0.3276	0.1471	4.40	0.2010	0.1090	3.26
22	0.0286	1.72	50.0	0.4225	0.1907	5.71	0.2772	0.1459	4.37

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	24 GAUGE		22 GAUGE	
	Live Load Stress	Live Load Deflection	Live Load Stress	Live Load Deflection
4.0	158	681	211	901
5.0	100	348	134	461
6.0	69	202	93	267
7.0	51	127	68	168



NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x is for deflection determination
- S_x is for bending
- M_x is allowable bending moment
- The panel weight has been deducted from the allowable loads
- Values shown for wind load deflection are limited by a maximum deflection ratio of $L/120$
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- Load table values do not include web crippling requirements

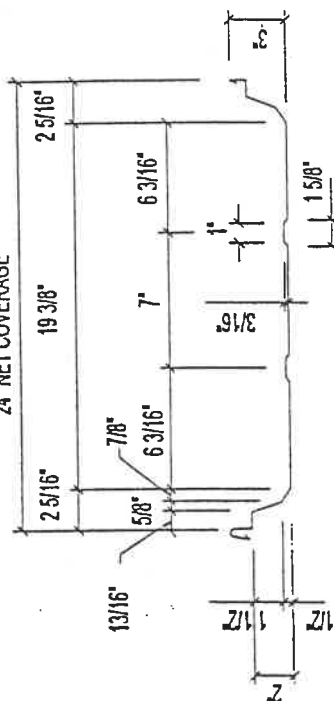
PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (Fy)			PANEL BOTTOM IN COMPRESSION (Fy)		
				I_x in^4 / ft	S_x in^3 / ft	M_a $\text{in-kip} / \text{ft}$	I_x in^4 / ft	S_x in^3 / ft	M_a $\text{in-kip} / \text{ft}$
24	0.0223	1.22	50.0	0.2599	0.1057	3.17	0.1349	0.0749	2.18
22	0.0286	1.56	50.0	0.3354	0.1379	4.13	0.1867	0.0976	2.92

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	24 GAUGE		22 GAUGE	
	Live Load Stress	Live Load Deflection	Live Load Stress	Live Load Deflection
4.0	105	508	141	672
5.0	67	260	90	344
6.0	46	151	62	199
7.0	33	95	45	125

24" NET COVERAGE



24" Ultra-Dek & Double-Lok Panels

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x is for deflection determination
- S_x is for bending
- M_a is allowable bending moment
- The panel weight has been deducted from the allowable loads
- Values shown for wind load deflection are limited by a maximum deflection ratio of $L/120$
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- Load table values do not include web crippling requirements

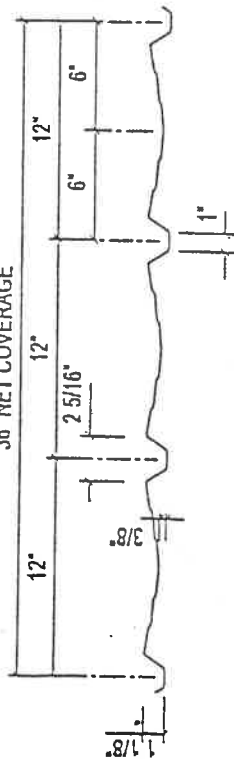
PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	F _y (ksi)	PANEL TOP IN COMPRESSION (F _y)			PANEL BOTTOM IN COMPRESSION (F _y)		
				I_x in ⁴ / ft	S_x in ³ / ft	M_a in-kip / ft	I_x in ⁴ / ft	S_x in ³ / ft	M_a in-kip / ft
24	0.0223	1.16	50.0	0.2129	0.0814	2.44	0.1014	0.0547	1.64
22	0.0286	1.49	50.0	0.2749	0.1075	3.22	0.1406	0.0733	2.20

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	24 GAUGE		22 GAUGE	
	Live Load Stress	Live Load Deflection	Live Load Stress	Live Load Deflection
4.0	79	405	105	535
5.0	50	207	67	274
6.0	34	120	46	159
7.0	25	76	33	100

36" NET COVERAGE



"A" Panel

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

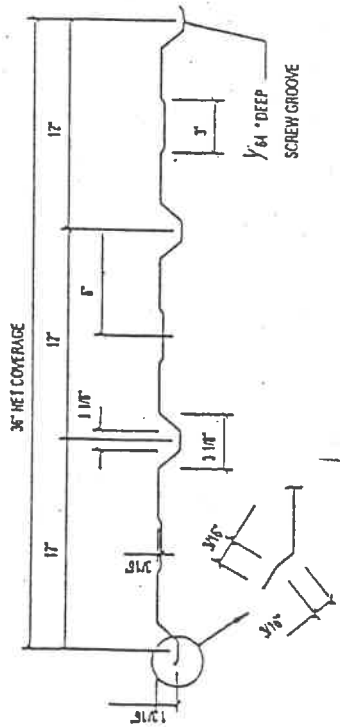
- I_x is for deflection determination
- S_x is for bending
- M_x is allowable bending moment
- The wind load stress values have been increased by 33 1/3%
- Values shown for wind load deflection are limited by a maximum deflection ratio of $L/120$
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- This panel is to be used as wall panel only

PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (Fy)				PANEL BOTTOM IN COMPRESSION (Fy)			
				I_x in ⁴ /ft	S_x in ³ /ft	M_x in-klp/ft	I_x in ⁴ /ft	S_x in ³ /ft	M_x in-klp/ft	I_x in ⁴ /ft	S_x in ³ /ft
26	0.0181	0.91	80.0	0.0187	0.0275	0.99	0.0248	0.0365	1.31	0.0248	0.0365
24	0.0223	1.13	50.0	0.0273	0.0377	1.13	0.0319	0.0477	1.43	0.0319	0.0477

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	26 GAUGE				24 GAUGE			
	Wind Load Pressure	Wind Load Suction	Wind Load Deflection	Wind Load Pressure	Wind Load Suction	Wind Load Deflection	Wind Load Pressure	Wind Load Deflection
4.0	85	64	84	93	73	114	93	114
5.0	54	41	43	59	47	59	59	59
6.0	38	29	25	41	33	34	41	34
7.0	28	21	16	30	24	21	30	21
8.0	21	16	10	23	18	14	23	14



"AM" Panel

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

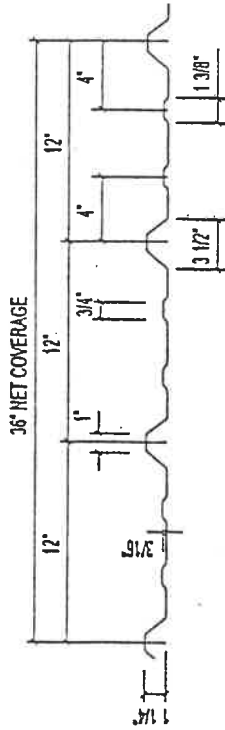
- I_x is for deflection determination
- S_x is for bending
- M_x is allowable bending moment
- The wind load stress values have been increased by 33 1/3%
- Values shown for wind load deflection are limited by a maximum deflection ratio of L/120
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- This panel is to be used as wall panel only

PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (Fy)				PANEL BOTTOM IN COMPRESSION (Fy)			
				I_x in ⁴ / ft	S_x in ³ / ft	M_x in-kip / ft	I_x in ⁴ / ft	S_x in ³ / ft	M_x in-kip / ft	I_x in ⁴ / ft	S_x in ³ / ft
26	0.0181	0.91	80.0	0.0451	0.0522	1.87	0.0388	0.0365	1.31		
24	0.0223	1.12	50.0	0.0555	0.0643	1.92	0.0536	0.0536	1.60		

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	26 GAUGE			24 GAUGE		
	Wind Load Pressure	Wind Load Suction	Wind Load Deflection	Wind Load Pressure	Wind Load Suction	Wind Load Deflection
4.0	85	114	162	104	125	210
5.0	54	73	83	67	80	108
6.0	38	51	48	46	56	62
7.0	28	37	30	34	41	39
8.0	21	28	20	26	31	26



"PBR" Panel

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x is for deflection determination
- S_x is for bending
- M_x is allowable bending moment
- The panel weight has been deducted from the allowable loads
- The wind load stress values have been increased by 33 1/3%
- Values shown for wind load deflection are limited by a maximum deflection ratio of $L/120$
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- Load table values do not include web crippling requirements

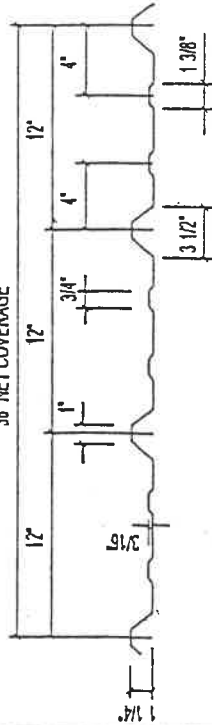
PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (FY)				PANEL BOTTOM IN COMPRESSION (FY)			
				I_x in^4/ft	S_x in^3/ft	M_x $\text{in-kip}/\text{ft}$	I_x in^4/ft	S_x in^3/ft	M_x $\text{in-kip}/\text{ft}$	I_x in^4/ft	M_x $\text{in-kip}/\text{ft}$
26	0.0181	0.92	80.0	0.0425	0.0379	1.36	0.0414	0.0502	1.80		
24	0.0223	1.14	50.0	0.0596	0.0571	1.71	0.0573	0.0644	1.93		

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	26 GAUGE				24 GAUGE			
	Wind Load Uplift	Live Load Stress	Live Load Deflection	Wind Load Uplift	Live Load Stress	Live Load Deflection	Live Load Deflection	
4.0	89	87	108	112	93	151		
5.0	57	55	55	72	59	77		
6.0	40	38	32	50	41	45		
7.0	30	28	20	37	30	28		
8.0	23	21	14	29	22	19		
							14	

36" NET COVERAGE



"R" Panel

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x is for deflection determination
- S_x is for bending
- M_x is allowable bending moment
- The panel weight has been deducted from the allowable loads
- The wind load stress values have been increased by 33 1/3%
- Values shown for wind load deflection are limited by a maximum deflection ratio of L/120
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- Load table values do not include web crippling requirements

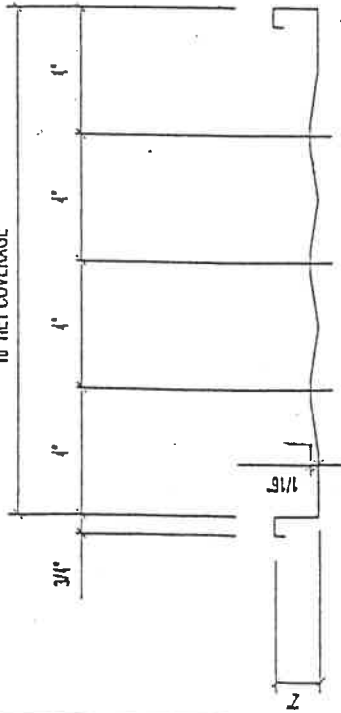
PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (Fy)			PANEL BOTTOM IN COMPRESSION (Fy)			
				I_x in ⁴ / ft	S_x in ³ / ft	M_x in-kip / ft	I_x in ⁴ / ft	S_x in ³ / ft	M_x in-kip / ft	
26	0.0181	0.92	80.0	0.0425	0.0379	1.36	0.0414	0.0502	1.80	
24	0.0223	1.14	50.0	0.0596	0.0571	1.71	0.0573	0.0644	1.93	

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	26 GAUGE			24 GAUGE		
	Wind Load Uplift	Live Load Stress	Live Load Deflection	Wind Load Uplift	Live Load Stress	Live Load Deflection
4.0	89	87	108	112	93	151
5.0	57	55	55	72	59	77
6.0	40	38	32	50	41	45
7.0	30	28	20	37	30	28
8.0	23	21	14	29	22	19

16" NET COVERAGE



"SS216" Panel

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x is for deflection determination
- S_x is for bending
- M_x is allowable bending moment
- The panel weight has been deducted from the allowable loads
- Values shown for wind load deflection are limited by a maximum deflection ratio of $L/120$
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- Load table values do not include web crippling requirements

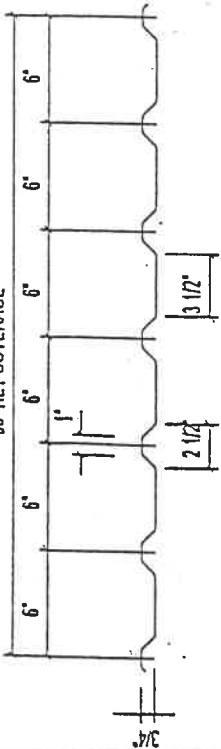
PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (Fy)			PANEL BOTTOM IN COMPRESSION (Fy)		
				I_x in^4 / ft	S_x in^3 / ft	M_x $\text{in-kip} / \text{ft}$	I_x in^4 / ft	S_x in^3 / ft	M_x $\text{in-kip} / \text{ft}$
24	0.0223	1.29	50.0	0.1332	0.0739	2.21	0.0637	0.0584	1.75
22	0.0286	1.66	50.0	0.1712	0.1023	3.06	0.0905	0.0796	2.38

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	24 GAUGE		22 GAUGE	
	Live Load Stress	Live Load Deflection	Live Load Stress	Live Load Deflection
4.0	84	254	114	337
5.0	63	130	73	173
6.0	37	75	50	100
7.0	27	47	36	63
				150

36" NET COVERAGE



"U" Panel

NOTES:

The panel section properties have been calculated in accordance with the 1986 edition of the AISI specifications with 1989 addendum.

- I_x is for deflection determination
- S_x is for bending
- M_x is allowable bending moment
- The panel weight has been deducted from the allowable loads
- The wind load stress values have been increased by 33 1/3%
- Values shown for wind load deflection are limited by a maximum deflection ratio of L/120
- Allowable load values shown are based on panel covering 3 equal continuous spans. Multiply allowable stress values shown by 0.8 for 2 span conditions
- Load table values do not include web crippling requirements

PANEL PROPERTIES

GA.	Design Thickness (in)	Weight (psf)	Fy (ksi)	PANEL TOP IN COMPRESSION (FY)			PANEL BOTTOM IN COMPRESSION (FY)			
				I_x in ⁴ / ft	S_x in ³ / ft	M_x in-kip / ft	I_x in ⁴ / ft	S_x in ³ / ft	M_x in-kip / ft	
26	0.0181	0.92	80.0	0.0260	0.0429	1.54	0.0177	0.0366	1.32	
24	0.0223	1.13	50.0	0.0344	0.0584	1.75	0.0242	0.0523	1.56	

ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

Span In Feet	26 GAUGE			24 GAUGE		
	Wind Load Uplift	Live Load Stress	Live Load Deflection	Wind Load Uplift	Live Load Stress	Live Load Deflection
4.0	101	63	56	115	75	75
5.0	65	40	29	74	48	39
6.0	45	28	17	52	33	22
7.0	34	20	10	38	24	14
8.0	26	15	7	30	18	9
						151