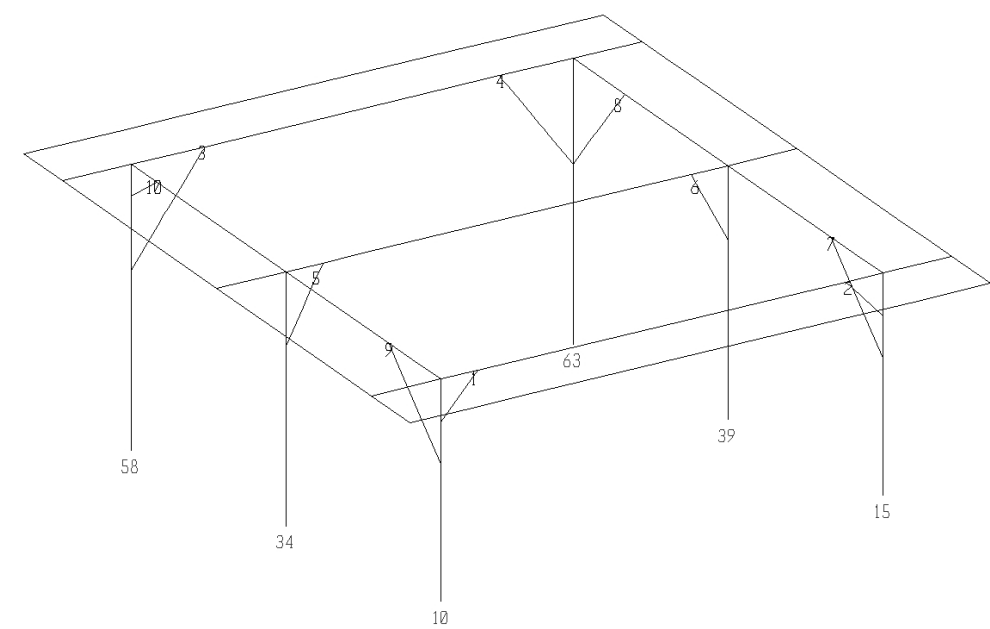


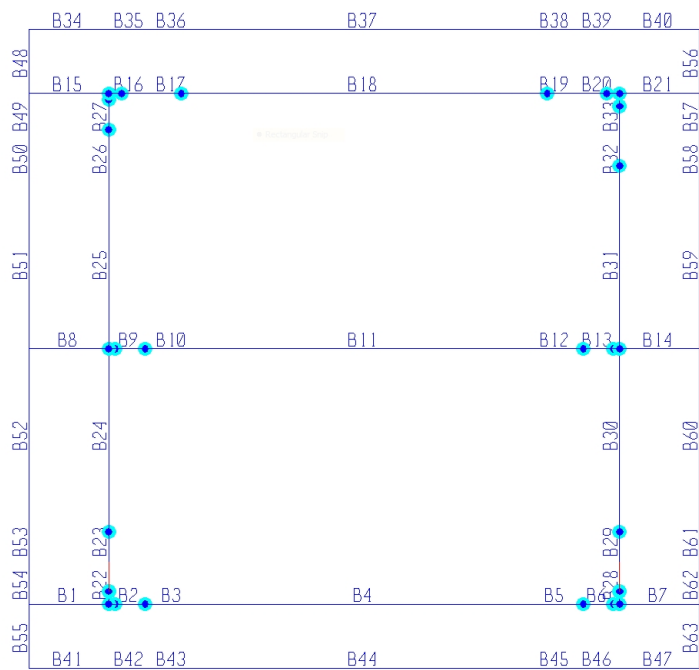
Carport Seismic Demands

SECTION 01



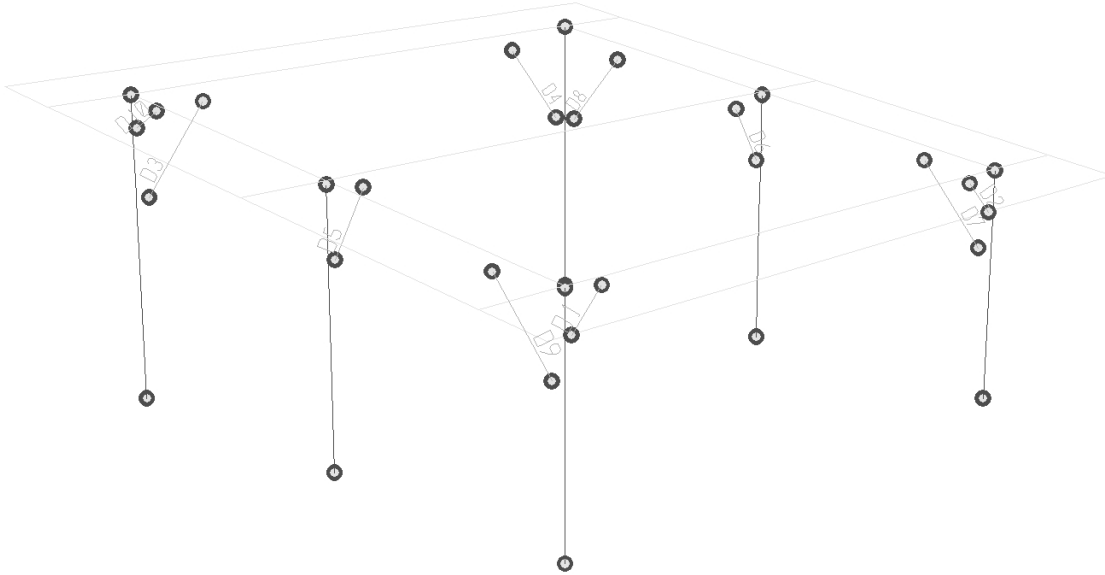
Column and Brace Numbers

[Fig: 0302.01]



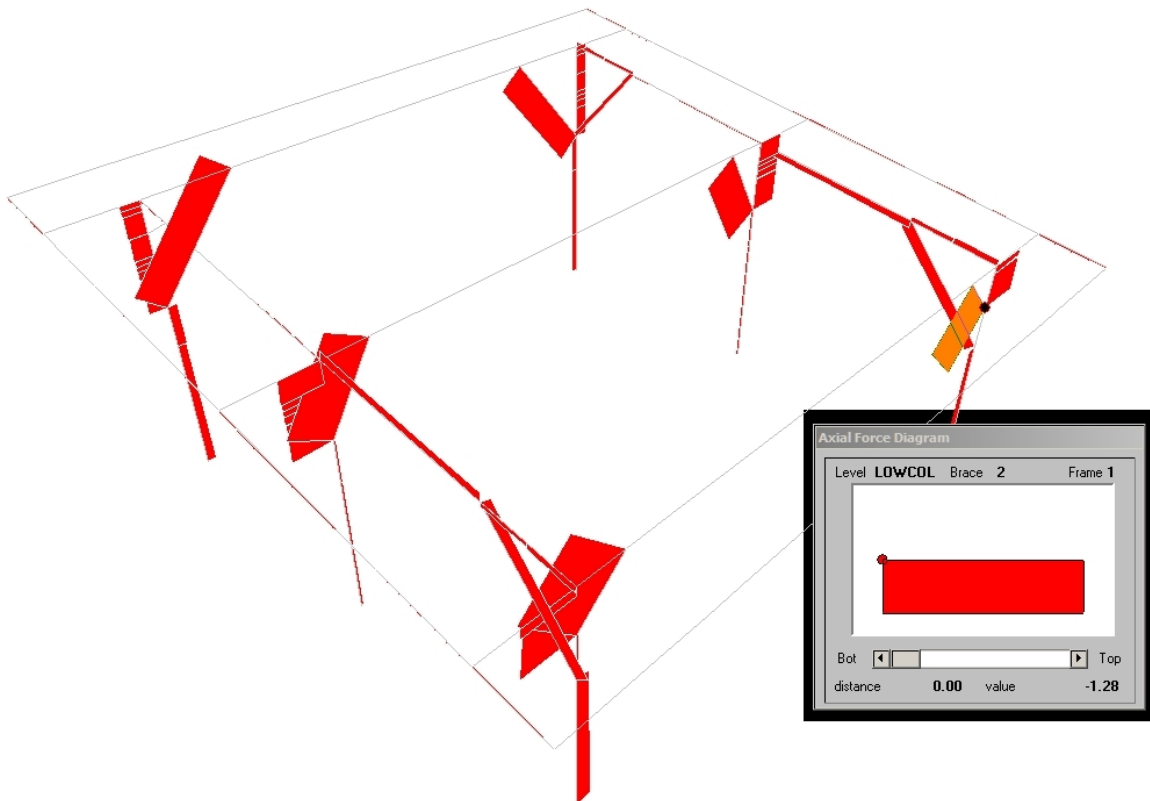
Beam Numbers

[Fig: 0302.02]



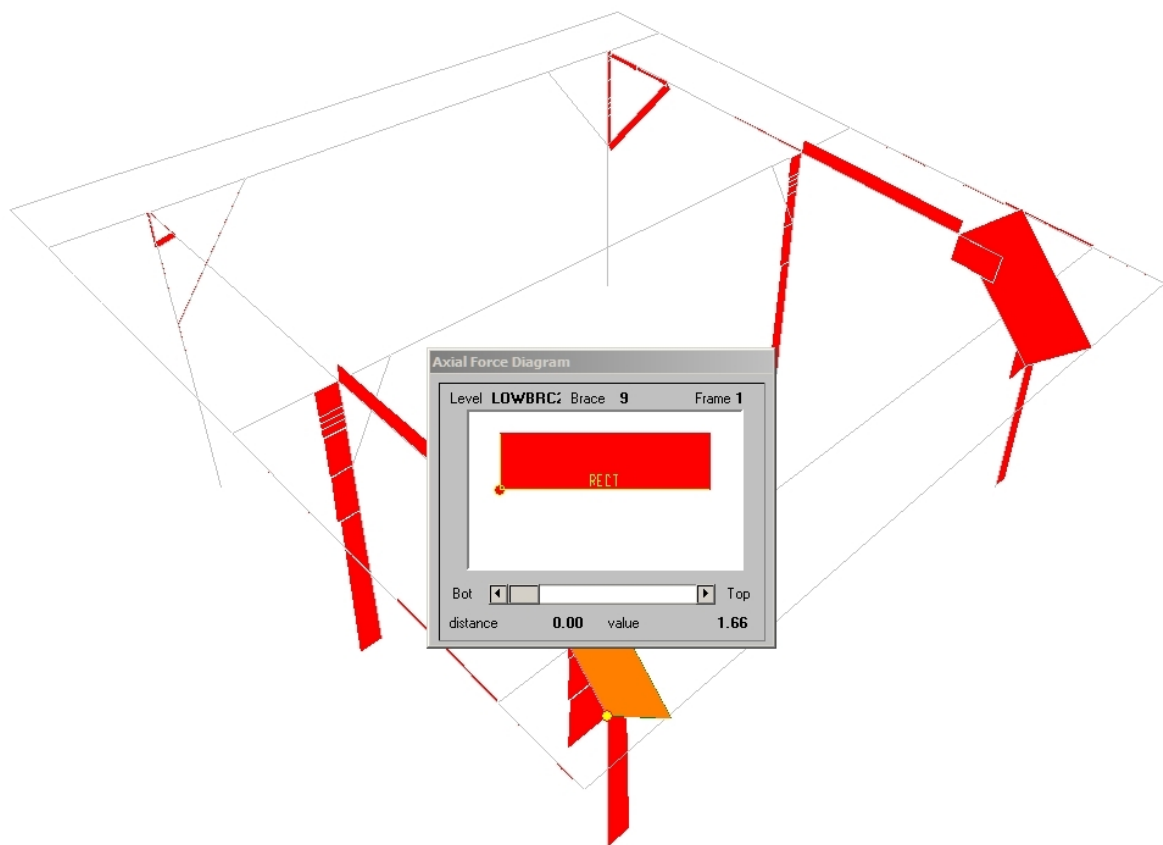
Element Pin Connections

[Fig: 0302.03]



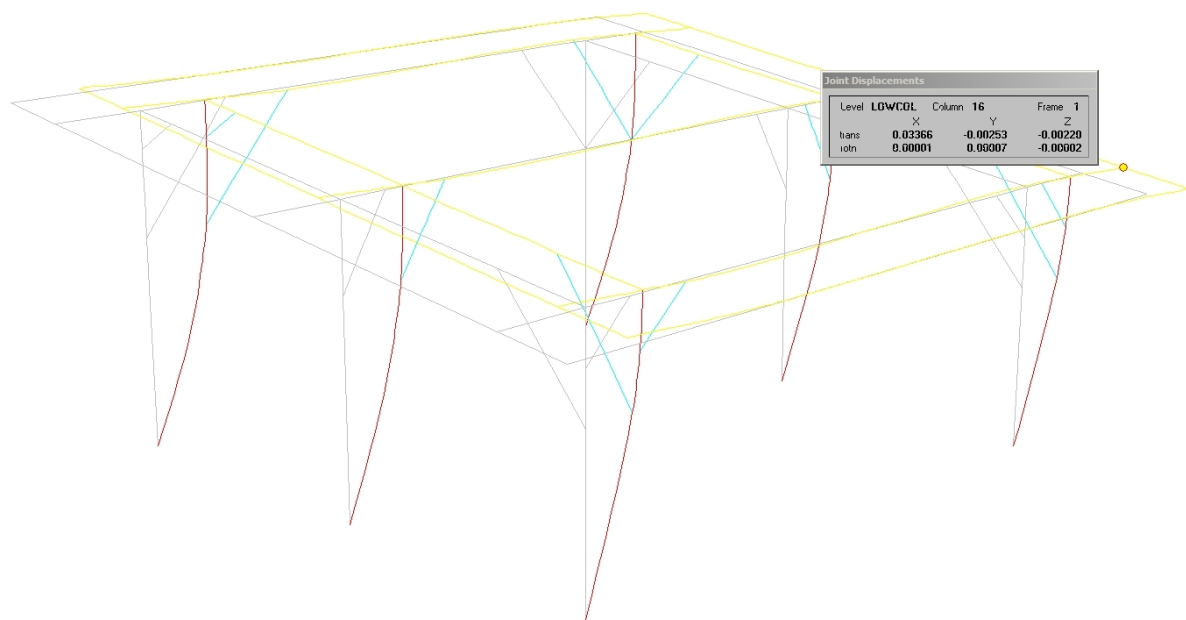
Axial Forces - Transverse Seismic

[Fig: 0302.04]



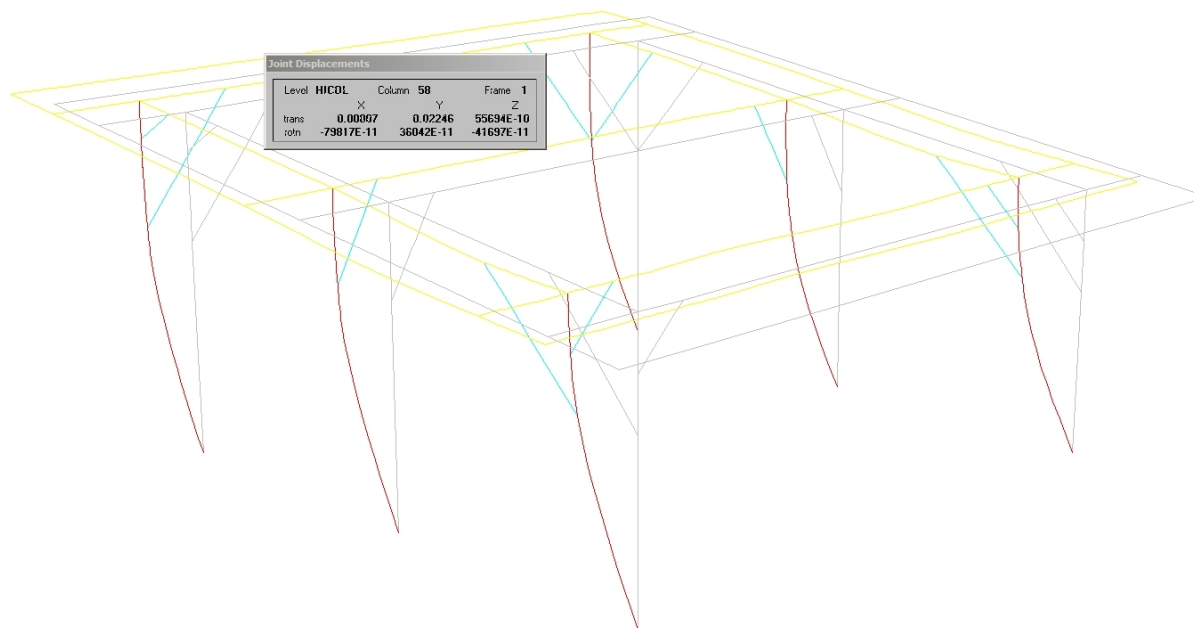
Axial Forces - Longitudinal Seismic

[Fig: 0302.05]



Deformations - Transverse Seismic (visually amplified)

[Fig: 0302.06]



Deformations - Longitudinal Seismic (visually amplified)

[Fig: 0302.07]

E T A B S

Extended Three Dimensional Analysis of Building Systems

NONLINEAR Version 6.22

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CARPORT

SEISMIC ANALYSIS

J O B C O N T R O L I N F O R M A T I O N

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NUMBER OF STORIES----- 11
NUMBER OF FLOOR DIAPHRAGMS ON EACH LEVEL----- 1
NUMBER OF DIFFERENT FRAMES----- 1
NUMBER OF TOTAL FRAMES----- 1
NUMBER OF MASS TYPES----- 0
NUMBER OF LOAD CASES----- 0
NUMBER OF STRUCTURAL PERIODS----- 3
NUMBER OF MATERIAL PROPERTIES----- 1
NUMBER OF PROPERTIES FOR COLUMNS----- 1
NUMBER OF PROPERTIES FOR BEAMS----- 2
NUMBER OF PROPERTIES FOR FLOORS----- 1
NUMBER OF PROPERTIES FOR BRACES----- 1
NUMBER OF PROPERTIES FOR PANELS----- 0
NUMBER OF PROPERTIES FOR SUPPORTS/LINKS----- 0
CODE FOR STATIC LATERAL ANALYSIS----- 11
CODE FOR DYNAMIC LATERAL ANALYSIS----- 1
CODE FOR STRUCTURE TYPE----- 0
CODE FOR P-DELTA ANALYSIS ----- 0

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CODE FOR FRAME JOINT STIFFNESS MODIFICATION-- 2
CODE FOR FRAME SELF WEIGHT LOAD CONDITION---- 0
CODE FOR TYPE OF UNITS----- 1
GRAVITATIONAL ACCELERATION----- 0.3864E+03
EIGEN CONVERGENCE TOLERANCE----- 0.1000E-03
EIGEN CUTOFF TIME PERIOD----- 0.0000E+00
P-DELTA FACTOR----- 0.1000E+01

```

CARPORT

SEISMIC ANALYSIS

STRUCTURAL STORY DATA . . .

STORY LEVEL	STORY HEIGHT	NUMBER OF DIAPHRAGMS
HITRIM	3.00	0
HICOL	2.00	0
HIBRAC1	2.00	0
HIBRAC2	8.00	0
MIDCOL	8.00	0
LOWBRC2	2.00	0
LOWBRC1	2.00	0
LOWCOL	3.00	0
LOWTRIM	13.00	0
LOWBC1	16.00	0
LOWBC2	52.00	0

CARPORT

SEISMIC ANALYSIS

MATERIAL PROPERTIES

ID	TYPE	ELASTIC MODULUS	POISSONS RATIO	UNIT WEIGHT	UNIT MASS	COEFF OF EXPANSION
1	0	0.1000E+05	0.3000	0.2300E-04	0.6000E-07	0.0000E+00

MATERIAL PROPERTIES FOR DESIGN

ID	TYPE	FY	FC	FYS	FCS	FBMAJ	FBMIN
----	------	----	----	-----	-----	-------	-------

SECTION PROPERTIES FOR COLUMNS

SECTION ID	TYPE	MAT ID	MAJOR DIM	MINOR DIM	FLANGE THICK	WEB THICK
1	RECT	1	5.500	5.500	0.000	0.000

SECTION PROPERTY REDUCTION FACTORS FOR COLUMNS

ID	TORSION J	MAJOR I	MINOR I
1	1.000	1.000	1.000

ANALYSIS SECTION PROPERTIES FOR COLUMNS

ID	AXIAL A	MAJOR AV	MINOR AV	TORSION J	MAJOR I	MINOR I
1	30.250	25.208	25.208	0.1289E+03	0.7626E+02	0.7626E+02

SECTION PROPERTIES FOR BEAMS

SECTION ID	TYPE	MAT ID	DEPTH BELOW	DEPTH ABOVE	BEAM WIDTH	FLANGE THICK	WEB THICK
1	RECT	1	11.250	0.000	3.500	0.000	0.000
2	RECT	1	5.500	0.000	1.500	0.000	0.000

SECTION PROPERTY REDUCTION FACTORS FOR BEAMS

ID	TORSION J	MAJOR I	MINOR I
1	1.000	1.000	1.000
2	1.000	1.000	1.000

ANALYSIS SECTION PROPERTIES FOR BEAMS

ID	AXIAL A	MAJOR AV	MINOR AV	TORSION J	MAJOR I	MINOR I
1	39.375	32.813	32.813	0.1293E+03	0.4153E+03	0.4020E+02
2	8.250	6.875	6.875	0.5125E+01	0.2080E+02	0.1547E+01

CARPORT

SEISMIC ANALYSIS

SECTION PROPERTIES FOR FLOORS

ELEMENT ID TYPE	MAT ID	FLOOR T11	FLOOR T22	FLOOR T12
1 MEMB	1	1.500	1.500	0.100

CARPORT

SEISMIC ANALYSIS

SECTION PROPERTIES FOR BRACES

SECTION ID TYPE	MAT ID	MAJOR DIM	MINOR DIM	FLANGE THICK	WEB THICK
1 RECT	1	3.500	3.500	0.000	0.000

SECTION PROPERTY REDUCTION FACTORS FOR BRACES

ID	TORSION J	MAJOR I	MINOR I
1	1.000	1.000	1.000

ANALYSIS SECTION PROPERTIES FOR BRACES

ID	AXIAL A	MAJOR AV	MINOR AV	TORSION J	MAJOR I	MINOR I
1	12.250	10.208	10.208	0.2113E+02	0.1251E+02	0.1251E+02

CARPORT

SEISMIC ANALYSIS

F R A M E C O N T R O L I N F O R M A T I O N

CARPORT

FRAME ID NUMBER-----	1
NUMBER OF COLUMN LINES-----	72
NUMBER OF BEAM BAYS-----	63
NUMBER OF FLOOR BAYS-----	24
NUMBER OF JOINT LOAD PATTERNS-----	0
NUMBER OF BEAM SPAN LOAD PATTERNS-----	0
NUMBER OF FLOOR SURFACE LOAD PATTERNS-----	0
CODE FOR JOINT DATA-----	0
MAXIMUM NUMBER OF BRACE ELEMENTS-----	10
MAXIMUM NUMBER OF PANEL ELEMENTS-----	0
MAXIMUM NUMBER OF LINK ELEMENTS-----	0
MAXIMUM NUMBER OF LOADS PER BEAM SPAN-----	4

SEISMIC ANALYSIS

INPUT AND/OR GENERATED BRACING DATA

BRACE ID	LEVEL AT TOP	COLUMN AT BOT	COLUMN AT TOP	PROP ID	PIN END MAJ/MIN	LEVELS DROPPED	BRACE LENGTH
-------------	-----------------	------------------	------------------	------------	--------------------	-------------------	-----------------

1	LOWCOL	10	11	1	3/3	2	22.63
2	LOWCOL	15	14	1	3/3	2	22.63
3	HICOL	58	60	1	3/3	8	51.22
4	HICOL	63	61	1	3/3	8	51.22
5	MIDCOL	34	35	1	3/3	5	32.25
6	MIDCOL	39	38	1	3/3	5	32.25
7	LOWBRC2	15	31	1	3/3	5	48.17
8	HIBRAC2	63	47	1	3/3	6	48.17
9	LOWBRC2	10	26	1	3/3	5	48.17
10	HIBRAC1	58	50	1	3/3	2	18.87

LEVEL /-----ELEMENT TYPE-----/

ID	COLUMN	BEAM	BRACE	PANEL	FLOOR
HITRIM	0.000	0.052	0.000	0.000	0.105
HICOL	0.001	0.241	0.014	0.000	0.175
HIBRAC1	0.003	0.035	0.003	0.000	0.140
HIBRAC2	0.007	0.088	0.007	0.000	0.350
MIDCOL	0.017	0.360	0.012	0.000	0.561
LOWBRC2	0.014	0.088	0.014	0.000	0.350
LOWBRC1	0.006	0.035	0.000	0.000	0.140
LOWCOL	0.009	0.241	0.006	0.000	0.175
LOWTRIM	0.033	0.052	0.000	0.000	0.105
LOWBC1	0.061	0.000	0.037	0.000	0.000
LOWBC2	0.142	0.000	0.014	0.000	0.000
BASELINE	0.109	0.000	0.000	0.000	0.000
TOTALS	0.401E+00	0.119E+01	0.106E+00	0.000E+00	0.210E+01

CARPORT

SEISMIC ANALYSIS

DIAPHRAGM MASS DATA

RESULTANTS OF STORY & TRIBUTARY ELEMENT MASSES

STORY	DIAPHRAGM	DIAPHRAGM	DIAPHRAGM	DIAPHRAGM	DIAPHRAGM
LEVEL	NUMBER	MASS	MMI	X-M	Y-M
HITRIM					
	1	0.000	0.3774E+01	126.00	240.00
HICOL					
	1	0.001	0.9170E+01	126.00	216.00
HIBRAC1					
	1	0.000	0.4748E+01	124.59	200.25
HIBRAC2					
	1	0.001	0.1189E+02	127.44	184.49
MIDCOL					
	1	0.002	0.2315E+02	125.73	121.40
LOWBRC2					
	1	0.001	0.1273E+02	126.00	59.34
LOWBRC1					
	1	0.000	0.5014E+01	126.00	43.93
LOWCOL					
	1	0.001	0.9719E+01	126.00	26.32
LOWTRIM					
	1	0.000	0.6148E+01	126.00	20.99
LOWBC1					

	1	0.000	0.3905E+01	132.70	134.66
LOWBC2					
	1	0.000	0.6311E+01	126.00	111.62

CARPORT

SEISMIC ANALYSIS

STATIC SEISMIC LOAD CALCULATION DATA . . .

UNIFORM BUILDING CODE 1994

UBC ZONE FACTOR (Z)----- 0.40

UBC IMPORTANCE FACTOR (I)----- 1.00

UBC SITE COEFFICIENT (S) ----- 1.20

LOAD CONDITION A (X-DIRECTION) . . .

PERIOD OF PREDOMINANT X STRUCTURAL MODE----- 0.500

UBC (METHOD A) PERIOD FOR X DIRECTION----- 0.500

UBC STRUCTURAL SYSTEM COEFFICIENT (RW)----- 4.000

TOP LEVEL OF TRIANGULAR DISTRIBUTION----- HITRIM

BOTTOM LEVEL OF TRIANGULAR DISTRIBUTION----- BASELINE

LOAD CONDITION B (Y-DIRECTION) . . .

PERIOD OF PREDOMINANT Y STRUCTURAL MODE----- 0.500

UBC (METHOD A) PERIOD FOR Y DIRECTION----- 0.500

UBC STRUCTURAL SYSTEM COEFFICIENT (RW)----- 4.000

TOP LEVEL OF TRIANGULAR DISTRIBUTION----- HITRIM

BOTTOM LEVEL OF TRIANGULAR DISTRIBUTION----- BASELINE

ADDITIONAL STORY ECCENTRICITIES . . .

LEVEL	EYA	EXB
-------	-----	-----

HITRIM	0.00	0.00
--------	------	------

HICOL	0.00	0.00
-------	------	------

HIBRAC1	0.00	0.00
---------	------	------

HIBRAC2	0.00	0.00
---------	------	------

MIDCOL	0.00	0.00
--------	------	------

LOWBRC2	0.00	0.00
---------	------	------

LOWBRC1	0.00	0.00
---------	------	------

LOWCOL	0.00	0.00
--------	------	------

LOWTRIM	0.00	0.00
---------	------	------

LOWBC1	0.00	0.00
--------	------	------

LOWBC2	0.00	0.00
--------	------	------

CARPORT

SEISMIC ANALYSIS

UBC '94 SEISMIC LOADS FOR DIRECTION X

 $V = ZICW/RW, \quad C = 1.25S/T^{2/3}$

T = 0.5000

Z = 0.4000

S = 1.2000

I = 1.0000

C = 2.3811

RW= 4.0000

W = 3.7

V = 0.2381W

= 0.89

FT= 0.00

CARPORT

SEISMIC ANALYSIS

UBC '94 SEISMIC LOADS FOR DIRECTION Y

 $V = ZICW/RW, \quad C = 1.25S/T^{2/3}$

T = 0.5000

Z = 0.4000

S = 1.2000

I = 1.0000

C = 2.3811

RW = 4.0000

W = 3.7

V = 0.2381W

= 0.89

FT = 0.00

CARPORT

SEISMIC ANALYSIS

STRUCTURAL LATERAL LOAD CONDITIONS

AS ADJUSTED BY CODE SEISMIC REQUIREMENTS

STRUCTURAL LATERAL LOAD CONDITION A (X-DIRECTION) FOR DIAPHRAGM 1

LEVEL	FX	FY	X	Y
HITRIM	0.05	0.00	126.00	240.00
HICOL	0.12	0.00	126.00	216.00
HIBRAC1	0.05	0.00	124.59	200.25
HIBRAC2	0.12	0.00	127.44	184.49
MIDCOL	0.23	0.00	125.73	121.40
LOWBRC2	0.11	0.00	126.00	59.34
LOWBRC1	0.04	0.00	126.00	43.93
LOWCOL	0.09	0.00	126.00	26.32
LOWTRIM	0.04	0.00	126.00	20.99
LOWBC1	0.02	0.00	132.70	134.66
LOWBC2	0.02	0.00	126.00	111.62

CARPORT

STRUCTURAL LATERAL LOAD CONDITION B (Y-DIRECTION) FOR DIAPHRAGM 1

LEVEL	FX	FY	X	Y
HITRIM	0.00	0.05	126.00	240.00
HICOL	0.00	0.12	126.00	216.00
HIBRAC1	0.00	0.05	124.59	200.25
HIBRAC2	0.00	0.12	127.44	184.49
MIDCOL	0.00	0.23	125.73	121.40
LOWBRC2	0.00	0.11	126.00	59.34
LOWBRC1	0.00	0.04	126.00	43.93
LOWCOL	0.00	0.09	126.00	26.32
LOWTRIM	0.00	0.04	126.00	20.99
LOWBC1	0.00	0.02	132.70	134.66
LOWBC2	0.00	0.02	126.00	111.62

CARPORT

STRUCTURAL LATERAL LOAD CONDITION C (ROTATION) FOR DIAPHRAGM 1

LEVEL	MZ
HITRIM	0.00
HICOL	0.00
HIBRAC1	0.00

HIBRAC2	0.00
MIDCOL	0.00
LOWBRC2	0.00
LOWBRC1	0.00
LOWCOL	0.00
LOWTRIM	0.00
LOWBC1	0.00
LOWBC2	0.00

SEISMIC ANALYSIS

COORDINATES OF CENTERS OF CUMULATIVE MASS & CENTERS OF RIGIDITY

STORY DIAPHRAGM /-----CENTER OF MASS-----//--CENTER OF RIGIDITY--/

LEVEL	NUMBER	MASS	ORDINATE-X	ORDINATE-Y	ORDINATE-X	ORDINATE-Y
HITRIM						
	1	0.000	126.000	240.000	126.237	116.614
HICOL						
	1	0.002	126.000	222.418	126.451	114.938
HIBRAC1						
	1	0.002	125.669	217.208	126.590	114.735
HIBRAC2						
	1	0.003	126.324	205.099	126.682	114.562
MIDCOL						
	1	0.006	126.065	168.525	126.433	114.186
LOWBRC2						
	1	0.007	126.053	149.224	126.382	114.455
LOWBRC1						
	1	0.007	126.050	142.460	126.366	114.476
LOWCOL						
	1	0.008	126.043	127.052	126.345	114.502
LOWTRIM						
	1	0.009	126.041	121.166	126.295	114.701
LOWBC1						
	1	0.009	126.224	121.537	126.104	116.163
LOWBC2						
	1	0.010	126.215	121.120	126.055	117.272

STATIC LOAD CONDITION LATERAL STORY SHEARS FOR ALL DIAPHRAGMS

VALUES ARE AT THE GLOBAL ORIGIN IN THE GLOBAL COORDINATES

LEVEL	DIRN	/-----LOAD CONDITIONS-----/					
		I	II	III	A	B	C
HITRIM	X	0.00	0.00	0.00	0.05	0.00	0.00
HITRIM	Y	0.00	0.00	0.00	0.00	0.05	0.00
HICOL	X	0.00	0.00	0.00	0.16	0.00	0.00
HICOL	Y	0.00	0.00	0.00	0.00	0.16	0.00
HIBRAC1	X	0.00	0.00	0.00	0.21	0.00	0.00
HIBRAC1	Y	0.00	0.00	0.00	0.00	0.21	0.00
HIBRAC2	X	0.00	0.00	0.00	0.34	0.00	0.00
HIBRAC2	Y	0.00	0.00	0.00	0.00	0.34	0.00
MIDCOL	X	0.00	0.00	0.00	0.57	0.00	0.00

MIDCOL	Y	0.00	0.00	0.00	0.00	0.57	0.00
LOWBRC2	X	0.00	0.00	0.00	0.68	0.00	0.00
LOWBRC2	Y	0.00	0.00	0.00	0.00	0.68	0.00
LOWBRC1	X	0.00	0.00	0.00	0.72	0.00	0.00
LOWBRC1	Y	0.00	0.00	0.00	0.00	0.72	0.00
LOWCOL	X	0.00	0.00	0.00	0.81	0.00	0.00
LOWCOL	Y	0.00	0.00	0.00	0.00	0.81	0.00
LOWTRIM	X	0.00	0.00	0.00	0.85	0.00	0.00
LOWTRIM	Y	0.00	0.00	0.00	0.00	0.85	0.00
LOWBC1	X	0.00	0.00	0.00	0.87	0.00	0.00
LOWBC1	Y	0.00	0.00	0.00	0.00	0.87	0.00
LOWBC2	X	0.00	0.00	0.00	0.89	0.00	0.00
LOWBC2	Y	0.00	0.00	0.00	0.00	0.89	0.00
CARPORT							

STATIC LOAD CONDITION LATERAL FRAME DRIFT RATIOS FOR DIAPHRAGM 1
VALUES ARE AT THE FRAME ORIGIN IN THE FRAME LOCAL COORDINATES

/-----LOAD CONDITIONS-----/							
LEVEL	DIRN	I	II	III	A	B	C
HITRIM	X	0.00000	0.00000	0.00000	0.00002	0.00001	0.00000
HITRIM	Y	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000
HITRIM	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HICOL	X	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000
HICOL	Y	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HICOL	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC1	X	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000
HIBRAC1	Y	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC1	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC2	X	0.00000	0.00000	0.00000	0.00001	-0.00001	0.00000
HIBRAC2	Y	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC2	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
MIDCOL	X	0.00000	0.00000	0.00000	0.00003	0.00000	0.00000
MIDCOL	Y	0.00000	0.00000	0.00000	0.00000	-0.00002	0.00000
MIDCOL	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBRC2	X	0.00000	0.00000	0.00000	0.00003	0.00000	0.00000
LOWBRC2	Y	0.00000	0.00000	0.00000	0.00001	0.00003	0.00000
LOWBRC2	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBRC1	X	0.00000	0.00000	0.00000	0.00004	0.00000	0.00000
LOWBRC1	Y	0.00000	0.00000	0.00000	0.00001	0.00005	0.00000
LOWBRC1	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWCOL	X	0.00000	0.00000	0.00000	0.00005	0.00000	0.00000
LOWCOL	Y	0.00000	0.00000	0.00000	0.00001	0.00003	0.00000
LOWCOL	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWTRIM	X	0.00000	0.00000	0.00000	0.00011	0.00000	0.00000
LOWTRIM	Y	0.00000	0.00000	0.00000	0.00002	0.00005	0.00000
LOWTRIM	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBC1	X	0.00000	0.00000	0.00000	0.00027	0.00000	0.00000
LOWBC1	Y	0.00000	0.00000	0.00000	0.00002	0.00013	0.00000
LOWBC1	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBC2	X	0.00000	0.00000	0.00000	0.00052	0.00000	0.00000

LOWBC2	Y	0.00000	0.00000	0.00000	0.00004	0.00038	0.00000
LOWBC2	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

STRUCTURAL TIME PERIODS AND FREQUENCIES

MODE NUMBER	PERIOD (TIME)	FREQUENCY (CYCLES/UNIT TIME)	CIRCULAR/FREQ (RADIAN/UNIT TIME)
1	0.12353	8.09552	50.86566
2	0.09821	10.18244	63.97819
3	0.09772	10.23350	64.29899

MODAL PARTICIPATION FACTORS

MODE NUMBER	X-TRANS DIRECTION	Y-TRANS DIRECTION	Z-ROTN DIRECTION
1	0.09758	0.00029	-0.78367
2	-0.00983	0.01423	-7.91733
3	0.00115	0.09709	1.16317

MODAL DIRECTION FACTORS

MODE NUMBER	X-TRANS DIRECTION	Y-TRANS DIRECTION	Z-ROTN DIRECTION
1	99.36060	0.00096	0.63844
2	32.87273	2.11559	65.01169
3	0.70362	97.89345	1.40293

EFFECTIVE MASS FACTORS

NUMBER	%-MASS	<%-SUM>	%-MASS	<%-SUM>	%-MASS	<%-SUM>
1	98.83	< 98.8>	0.00	< 0.0>	0.64	< 0.6>
2	1.00	< 99.8>	2.10	< 2.1>	64.93	< 65.6>
3	0.01	< 99.8>	97.83	< 99.9>	1.40	< 67.0>

SEISMIC ANALYSIS

COORDINATES OF CENTERS OF CUMULATIVE MASS & CENTERS OF RIGIDITY

STORY	DIAPHRAGM	CENTER OF MASS			CENTER OF RIGIDITY	
LEVEL	NUMBER	MASS	ORDINATE-X	ORDINATE-Y	ORDINATE-X	ORDINATE-Y
HITRIM	1	0.000	126.000	240.000	126.237	116.614
HICOL	1	0.002	126.000	222.418	126.451	114.938
HIBRAC1	1	0.002	125.669	217.208	126.590	114.735
HIBRAC2	1	0.003	126.324	205.099	126.682	114.562
MIDCOL	1	0.006	126.065	168.525	126.433	114.186
LOWBRC2	1	0.007	126.053	149.224	126.382	114.455
LOWBRC1	1	0.007	126.050	142.460	126.366	114.476
LOWCOL	1	0.008	126.043	127.052	126.345	114.502
LOWTRIM	1	0.009	126.041	121.166	126.295	114.701

LOWBC1	1	0.009	126.224	121.537	126.104	116.163
LOWBC2	1	0.010	126.215	121.120	126.055	117.272

STATIC LOAD CONDITION LATERAL STORY SHEARS FOR ALL DIAPHRAGMS
VALUES ARE AT THE GLOBAL ORIGIN IN THE GLOBAL COORDINATES

/-----LOAD CONDITIONS-----/							
LEVEL	DIRN	I	II	III	A	B	C
HITRIM	X	0.00	0.00	0.00	0.05	0.00	0.00
HITRIM	Y	0.00	0.00	0.00	0.00	0.05	0.00
HICOL	X	0.00	0.00	0.00	0.16	0.00	0.00
HICOL	Y	0.00	0.00	0.00	0.00	0.16	0.00
HIBRAC1	X	0.00	0.00	0.00	0.21	0.00	0.00
HIBRAC1	Y	0.00	0.00	0.00	0.00	0.21	0.00
HIBRAC2	X	0.00	0.00	0.00	0.34	0.00	0.00
HIBRAC2	Y	0.00	0.00	0.00	0.00	0.34	0.00
MIDCOL	X	0.00	0.00	0.00	0.57	0.00	0.00
MIDCOL	Y	0.00	0.00	0.00	0.00	0.57	0.00
LOWBRC2	X	0.00	0.00	0.00	0.68	0.00	0.00
LOWBRC2	Y	0.00	0.00	0.00	0.00	0.68	0.00
LOWBRC1	X	0.00	0.00	0.00	0.72	0.00	0.00
LOWBRC1	Y	0.00	0.00	0.00	0.00	0.72	0.00
LOWCOL	X	0.00	0.00	0.00	0.81	0.00	0.00
LOWCOL	Y	0.00	0.00	0.00	0.00	0.81	0.00
LOWTRIM	X	0.00	0.00	0.00	0.85	0.00	0.00
LOWTRIM	Y	0.00	0.00	0.00	0.00	0.85	0.00
LOWBC1	X	0.00	0.00	0.00	0.87	0.00	0.00
LOWBC1	Y	0.00	0.00	0.00	0.00	0.87	0.00
LOWBC2	X	0.00	0.00	0.00	0.89	0.00	0.00
LOWBC2	Y	0.00	0.00	0.00	0.00	0.89	0.00
CARPORT							

STATIC LOAD CONDITION LATERAL FRAME DRIFT RATIOS FOR DIAPHRAGM 1
VALUES ARE AT THE FRAME ORIGIN IN THE FRAME LOCAL COORDINATES

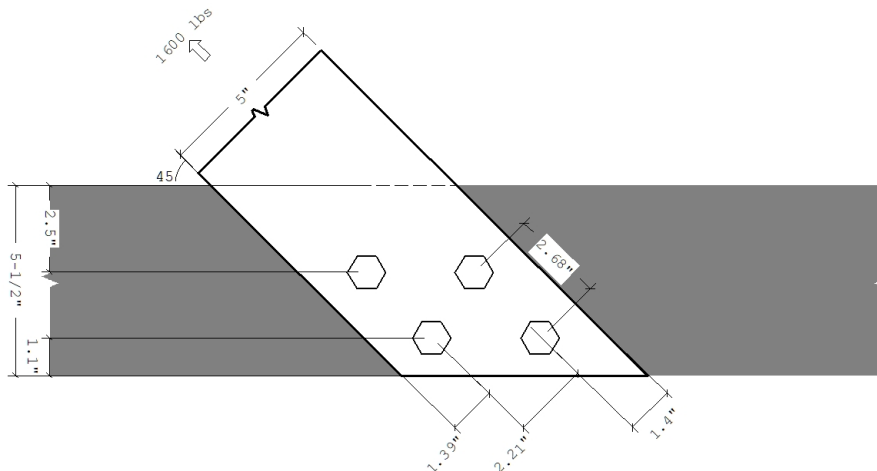
/-----LOAD CONDITIONS-----/							
LEVEL	DIRN	I	II	III	A	B	C
HITRIM	X	0.00000	0.00000	0.00000	0.00002	0.00001	0.00000
HITRIM	Y	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000
HITRIM	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HICOL	X	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000
HICOL	Y	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HICOL	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC1	X	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000
HIBRAC1	Y	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC1	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC2	X	0.00000	0.00000	0.00000	0.00001	-0.00001	0.00000
HIBRAC2	Y	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HIBRAC2	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

MIDCOL	X	0.00000	0.00000	0.00000	0.00003	0.00000	0.00000
MIDCOL	Y	0.00000	0.00000	0.00000	0.00000	-0.00002	0.00000
MIDCOL	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBRC2	X	0.00000	0.00000	0.00000	0.00003	0.00000	0.00000
LOWBRC2	Y	0.00000	0.00000	0.00000	0.00001	0.00003	0.00000
LOWBRC2	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBRC1	X	0.00000	0.00000	0.00000	0.00004	0.00000	0.00000
LOWBRC1	Y	0.00000	0.00000	0.00000	0.00001	0.00005	0.00000
LOWBRC1	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWCOL	X	0.00000	0.00000	0.00000	0.00005	0.00000	0.00000
LOWCOL	Y	0.00000	0.00000	0.00000	0.00001	0.00003	0.00000
LOWCOL	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWTRIM	X	0.00000	0.00000	0.00000	0.00011	0.00000	0.00000
LOWTRIM	Y	0.00000	0.00000	0.00000	0.00002	0.00005	0.00000
LOWTRIM	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBC1	X	0.00000	0.00000	0.00000	0.00027	0.00000	0.00000
LOWBC1	Y	0.00000	0.00000	0.00000	0.00002	0.00013	0.00000
LOWBC1	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LOWBC2	X	0.00000	0.00000	0.00000	0.00052	0.00000	0.00000
LOWBC2	Y	0.00000	0.00000	0.00000	0.00004	0.00038	0.00000
LOWBC2	ROTZ	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Seismic D-C Ratios for Braces

SECTION 02

Connection capacities evaluated using Woodworks 11.2. The software does not allow a single bolt row so a two bolt configuration is analyzed and capacities are reduced by a factor of 2.



Brace plate reinforcement (two-bolt rows shown - one row analyzed)

[Fig: 0302.08]

One Steel Side Member Bolted at Angle To Main Member

Connection Data:

Main:

Lumber-soft D.Fir-L No.1 dry seasoned 5.50 x 5.50"

Member extends indefinitely, and end assumed to be free.

Side Plate:

ASTM A36 Grade A Steel 0.1250 x 5.00"

End is flush with edge of main member.

Side member is sloped 135.0 degrees with respect to the main member.

Temperature (T) : $T \leq 100$ deg F

Loads:

Along side member: 1600 lbs ten minutes duration in tension.

Connector Design:

Fasteners:

Bolt diameter: 5/8"

2 rows of 2 Bolts = 4 Bolts

Row Spacing: 2.21"

Bolt spacing in row: 2.68"

Design Results using NDS 2015:

Parallel to Grain:

Load: $P = -1131$ lbs

Row tear out capacity $R_t = 19802$ lbs Ratio: 0.06

Perpendicular to Grain:

Lateral load: $Q = 1131$ lbs

Resultant:

Combined lateral load: $N = 1600$ lbs at 45.0 degrees

Lateral capacity: $Z' = 3889$ lbs Ratio: 0.41

=====

Only one bolt per row is used so the lateral capacity is reduced by a factor of two.

=> DC ratio = .82

Additional Data:

Adjustment factors:

CD	CM	Ct	Cg	Cdelta	Cd	Cst	Cft
1.60	1.00	1.00	0.99	0.76	-	-	1.00

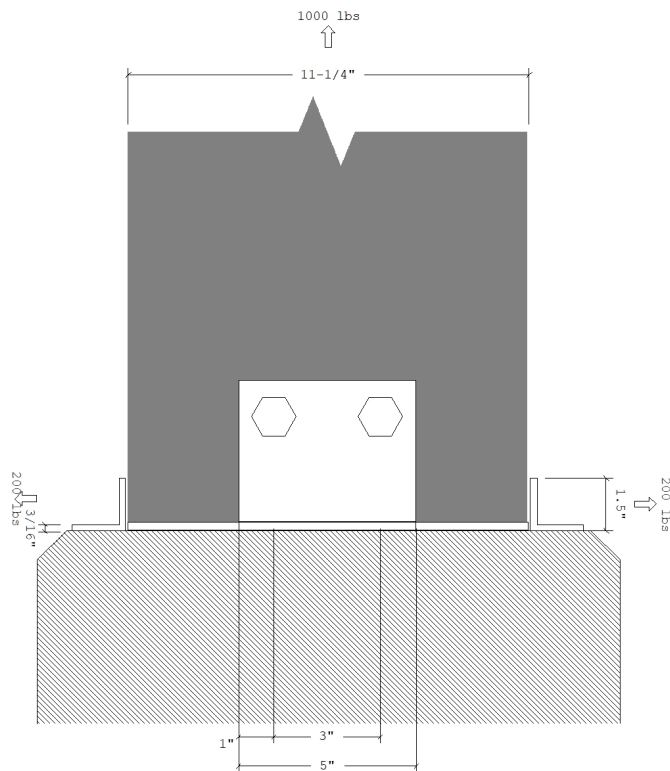
Yield Limit Values (lbs):

Im	Is	II	IIIIm	IIIIs	IV
2868	1510	1304	1593	812	1128

Seismic D-C Ratios for Beam Connections

SECTION 03

Check beam to beam angle connection drag force load path.



Bolted Column to Base Angle Connector

Connection Data:

Column:

Timber-soft D.Fir-L No.1 dry seasoned 11.25 x 3.50"

Temperature (T) : $T \leq 100$ deg F

Loads:

Lateral: 200 lbs ten minutes duration

Uplift: 1000 lbs ten minutes duration

Connector Design:

Components:

		Area (sq in)	Weight (lbs)
2 Side plates:	4.000 x 5.000 x 0.1250"	20.0	0.709
1 Base plate:	3.500 x 11.250 x 0.2500"	39.4	2.792
2 Clip Angles:	1-1/2 x 1-1/2 x 3/16 x 0.500 in	1.4	0.077
Totals:		82.3	4.363

Plate Steel:

Grade: ASTM A36/A36M Fy: 35525 psi Fu: 58000 psi

Steel Design Checks:

Each Side Plate:

Ratio of net area to gross area: 0.675

Tension in plate: $T = 500$ lbs Resistance $T_r = 12238$ lbs

Fasteners:

Face Plate:

Bolts: ASTM A307 F_y : 45,000 psi F_u : 60,000 psi

Bolt diameter: 3/4"

2 rows of 1 Bolts = 2 Bolts

Row Spacing: 3"

Steel Design Checks:

Shear per bolt: $V = 250$ lbs Resistance: $V_r = 5869$ lbsBearing per bolt: $B = 250$ lbs Resistance: $B_r = 2583$ lbs

Design Results using NDS 2015:

Load: $P = 1000$ lbsLateral capacity: $Z' = 5745$ lbs Ratio: 0.17Tension capacity net area $T_r = 42455$ lbs Ratio: 0.02Row tear out capacity $R_t = 18360$ lbs Ratio: 0.05Group tear out capacity $G_t = 35758$ lbs Ratio: 0.03

Horizontal Bearing:

Lateral load: $Q = 200$ lbsMax. bearing load: $Q_r = 200$ lbsMax. bending load: $Y_r = 230$ lbs

Additional Data:

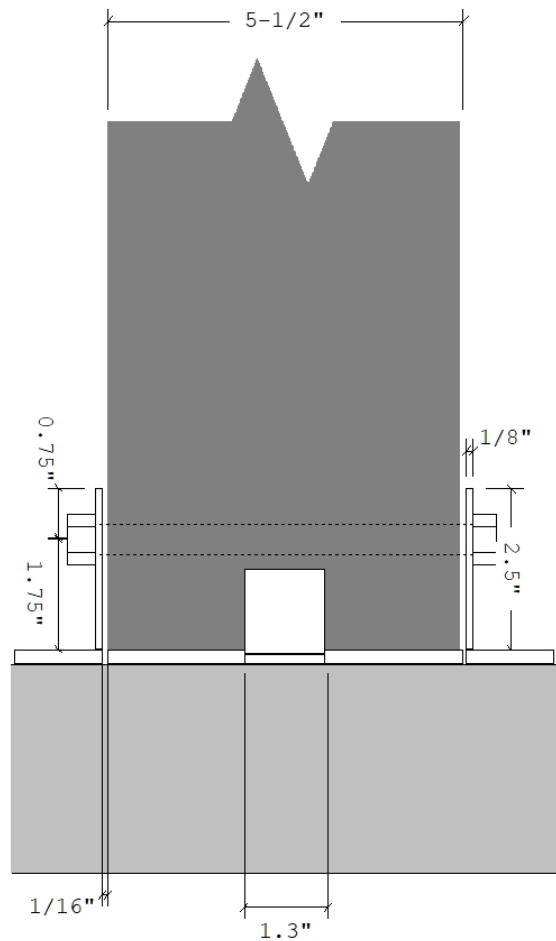
Adjustment factors:

CD	CM	Ct	Cg	Cdelta	Cd	Cst	Cft
1.60	1.00	1.00	1.00	0.57	-	-	1.00

Yield Limit Values (lbs):

Im	Is	II	IIIIm	IIIIs	IV
3675	4078	-	-	3142	4417

Check column connection shear load path to the foundation.



Bolted Column to Base Angle Connector

Connection Data:

Column:

Lumber Post D.Fir-L No.1 dry seasoned 5.50 x 5.50"

Temperature (T) : $T \leq 100$ deg F

Loads:

Lateral: 500 lbs ten minutes duration
Uplift: 150 lbs ten minutes duration

Connector Design:

Components:

		Area (sq in)	Weight (lbs)
2 Side plates:	2.500 x 1.500 x 0.1250"	3.7	0.133
1 Base plate:	5.500 x 5.500 x 0.2500"	30.2	2.145
2 Clip Angles:	1-1/2 x 1-1/2 x 3/16 x 1.281 in	3.6	0.191
Totals:		45.0	2.793
Plate Steel:			

Grade: ASTM A36/A36M Fy: 35525 psi Fu: 58000 psi
 Steel Design Checks:
 Each Side Plate:
 Ratio of net area to gross area: 0.625
 Tension in plate: T = 75 lbs Resistance Tr = 3399 lbs

Fasteners:

Face Plate:

Bolts: ASTM A307 Fy: 45,000 psi Fu: 60,000 psi
 Bolt diameter: 1/2"
 1 rows of 1 Bolts = 1 Bolts
 Steel Design Checks:
 Shear per bolt: V = 75 lbs Resistance: Vr = 1590 lbs
 Bearing per bolt: B = 75 lbs Resistance: Br = 2040 lbs

Design Results using NDS 2015:

Load: P = 150 lbs
 Lateral capacity: Z' = 1144 lbs Ratio: 0.13
 Tension capacity net area Tr = 32646 lbs Ratio: 0.00
 Row tear out capacity Rt = 2772 lbs Ratio: 0.05
 Horizontal Bearing:
 Lateral load: Q = 500 lbs
 Max. bearing load: Qr = 500 lbs
 Max. bending load: Yr = 576 lbs

Additional Data:

Adjustment factors:

CD	CM	Ct	Cg	Cdelta	Cd	Cst	Cft
1.60	1.00	1.00	1.00	0.50	-	-	1.00

Yield Limit Values (lbs):

Im	Is	II	IIIIm	IIIIs	IV
3850	2719	-	-	1430	1963

Seismic D-C Ratios for Column Base

SECTION 04

Check shear D-C at column base.

variable	value	[value]	description
V_total	1 [kip]	4.45 [KN]	total base shear
V_base	0.25 [kip]	1112.06 [N]	shear distributed over 4 columns
f_c	3 [ksi]	20.68 [MPa]	concrete strength
phi_v	0.85	0.85 [-]	capacity reduction

concrete shear strength

[Equ: 0302.01]

$$V_c = 2 \cdot 3000^{0.5} \cdot \psi \cdot \phi_v$$

V_c	phi_v	PSI
0.09 [ksi] [0.64 [MPa]]	0.85 [-]	[psi]

design shear capacity per column

[Equ: 0302.02]

$$V_d = 4 \cdot 7 \cdot \text{IN} \cdot \text{IN} \cdot V_c$$

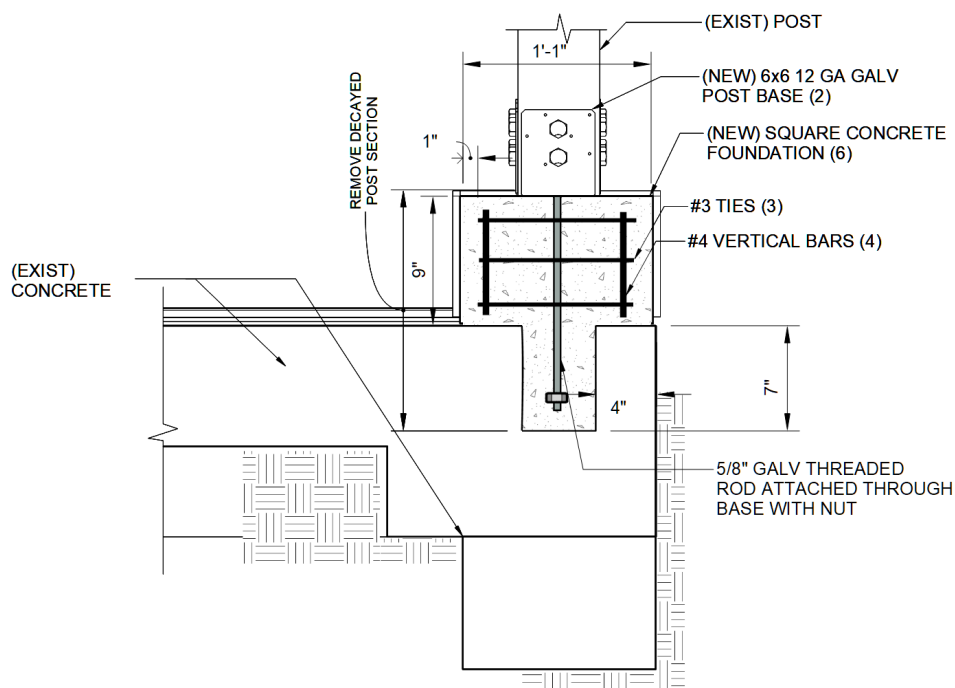
V_d	V_c	IN
2.61 [kips] [0.01 [MN]]	93.11 [psi]	[in]

D-C shear capacity at foundation

[Equ: 0302.03]

$$V_{dc} = \frac{V_{base}}{V_d}$$

V_dc	V_d	V_base
0.10 [-] [0.10 [-]]	2607.16 [lbs]	0.25 [kip]



Column Base Detail