ROCHELL ENGINEERING, INC.

Structural Calculations For:

De La Concepcion Residence

8965 SW 63rd Court

Pinecrest, FL 33156

Digitally signed by Alexander Rochell
Contact Info: Rochell Engineering
Date: 2023.11.08 15:55:51-05'00'

ALEXANDER ROCHELL LICENSE No. 60735 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Alexander Rochell, PE on 11/8/2023. Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.

Alexander Rochell, P.E.

FL Registration No. 60735

Cert. of Authorization No. 27054

1500 NW 89th Court – Suite 212, Doral, FL 33172 Tel: 305.649.4049

ROCHELL ENGINEERING, INC.

DESIGN LOADS:

Roof SDL	= 25 psf
Roof LL	= 30 psf
1st Floor SDL	= 35 psf
1st Floor LL	= 40 psf
2nd Floor SDL	= 35 psf
2nd Floor LL	= 40 psf
Stairs SDL	= 15 psf
Stairs LL	= 40 psf
Terrace SDL	= 15 psf
Terrace LL	= 60 psf
Garage SDL	= 15 psf
Garage LL	= 50 psf
Balcony SDL	= 15 psf
Balcony LL	= 60 psf

Wind Loads: (ASCE 7-16):

Velocity = 175 mph (Hurricane Ocean Line)
Exposure = C
Importance Factor = 1.0
Internal Pressure Coeff. = +/- 0.18
Directionality Factor, Kd = 0.85
Building Category = II

Note: This structure has been designed as "enclosed" and requires impact resistant glass or shutters to comply with Florida Building Code sections R4403.16 & R4410.

ROCHELL ENGINEERING, INC.

Wind Loads per ASCE 7-16

1500 NW 89th Court – Suite 212, Doral, FL 33172 Tel: 305.649.4049

MecaWind v2391

Software Developer: Meca Enterprises Inc., www.meca.biz, Copyright © 2020

Calculations Prepared by:
Rochell Engineering, Inc.
1500 NW 89th CT, Suite 212
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Doral, FL, 0
Date: Sep 13, 2021
Designer: CA

Calculations Prepared For:
Client: Pacheco-Martinez & Associates LLC.
Project #: Main House
Location: 8965 SW 63RD COURT, FLORIDA 33156
Description:
De La Concepcion

File Location:
Y:\00_Projects\Pacheco-Martinez & Associates\
De La Concepcion Residence (Pacheco Architecture)\Calculations\Wind Analysis\Wind Load Pressure (Main House).wnd

Basic Wind Parameters

Wind Load Standard	= ASCE 7-16	Exposure Category	= C
Wind Design Speed	= 175.0 mph	Risk Category	= II
Structure Type	= Building	Building Type	= Enclosed

General Wind Settings

Incl_LF	= Include ASD Load Factor of 0.6 in Pressures	= True
DynType	= Dynamic Type of Structure	= Rigid
Zg	= Altitude (Ground Elevation) above Sea Level	= 0.000 ft
Bdist	= Base Elevation of Structure	= 0.000 ft
SDB	= Simple Diaphragm Building	= True
Reacs	= Show the Base Reactions in the output	= False
MWFRSType	= MWFRS Method Selected	= Ch 27 Pt 2

Topographic Factor per Fig 26.8-1

Topo	= Topographic Feature	= None
Kzt	= Topographic Factor	= 1.000

Building Inputs

RoofType: Building Roof Type	= Hipped	W : Width Perp to Ridge	= 146.170 ft
L : Length Along Ridge	= 88.330 ft	EHt : Eave Height	= 28.670 ft
Hip : Ridge Hipped Length	= 28.670 ft	RE : Roof Entry Method	= Slope
Slope : Slope of Roof	= 3.0 :12	Theta : Roof Slope	= 14.04 Deg
Par : Is there a Parapet	= False		

Exposure Constants per Table 26.11-1:

Alpha:	Table 26.11-1 Const	= 9.500	Zg:	Table 26.11-1 Const	= 900.000 ft
At:	Table 26.11-1 Const	= 0.105	Bt:	Table 26.11-1 Const	= 1.000
Am:	Table 26.11-1 Const	= 0.154	Bm:	Table 26.11-1 Const	= 0.650
C:	Table 26.11-1 Const	= 0.200	Eps:	Table 26.11-1 Const	= 0.200

Overhang Inputs:

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

Gust Factor Calculation:

Gust Factor Category I Rigid Structures - Simplified Method

G1	= For Rigid Structures (Nat. Freq.>1 Hz) use 0.85	= 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm	= 0.6 * Ht	= 22.833 ft
Izm	= Cc * (33 / Zm) ^ 0.167	= 0.213
Lzm	= L * (Zm / 33) ^ Epsilon	= 464.495
Q	= (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5	= 0.885
G2	= 0.925*((1+1.7*lzm*3.4*Q)/(1+1.7*3.4*lzm))	= 0.866

Gust Factor Used in Analysis

G	= Lessor Of G1 Or G2	= 0.850

Main Wind Force Resisting System (MWFRS) Calculations per Ch 27 Part 2:

h	= Mean Roof Height above grade	= 38.056 ft
Kh	= 15 ft [4.572 m]< Z <Zg -->(2.01*(Z/zg)^(2/Alpha) {Table 26.10-1}	= 1.033
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
Theta	= Slope of Roof	= 14.04 Deg
LF	= Load Factor based upon ASD Design	= 0.60

Wind Pressures per Ch 27 Part 2 - Normal to Ridge

All wind pressures include a load factor of 0.6

L	= Building Length Parallel To the Direction Of Wind	= 146.170 ft

B	= Building Width Normal To the Wind Direction	= 88.330 ft
L/B	= Ratio Of L / B	= 1.655
LHD	= Least Horizontal Dimension: Min(B, L)	= 88.330 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 8.833 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 8.833 ft
0.5*h	= Parameter used to define zone width: 0.5*h	= 19.028 ft
Ph	= Net pressure at the top Of the wall per Table 27.5-1	= 44.09 psf
Po	= Net pressure at the base Of the wall per Table 27.5-1	= 39.69 psf
Ps	= Side Wall Press: Table 27.5-1: 1 < L/B < 2, interpolate	= -26.70 psf
Pl	= Leeward Wall Press: Table 27.5-1 : 1 < L/B < 2, interpolate	= -13.58 psf
Pwh	= Windward Wall Pressure at the Top per Table 27.5-1: Ph + Pl	= 30.51 psf
Pwo	= Windward Wall Pressure at the Base per Table 27.5-1: Po + Pl	= 26.11 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 1: 0.75*Pz1	= 32.22 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 2: 0.75*Pz1	= 4.67 psf
Povh3	= Overhang Bottom with Wind Par to Ridge, Load Case 1: 0.75*Pz3	= 32.88 psf
Povh3	= Overhang Bottom With Wind Par to Ridge, Load Case 2: 0.75*Pz3	= 0.00 psf
Lambda	= Exposure Adjustment Factor for Roofs per Table 27.5-2	= 1.000

Roof Pressures per Table 27.5-2 - Normal to Ridge

Zone Pressures Normal to Ridge

Zone	Load Case 1 psf	Load Case 2 psf
1	-42.95	6.23
2	-29.59	-8.74
3	-43.84	0.00
4	-39.06	0.00
5	-32.05	0.00

A pressure of zero '0' indicates that the load case is not applicable for that zone.

Wind Pressures per Ch 27 Part 2 - Parallel to Ridge

All wind pressures include a load factor of 0.6

L	= Building Length Parallel To the Direction Of Wind	= 88.330 ft
B	= Building Width Normal To the Wind Direction	= 146.170 ft
L/B	= Ratio Of L / B	= 0.604
LHD	= Least Horizontal Dimension: Min(B, L)	= 88.330 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 8.833 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 8.833 ft
0.5*h	= Parameter used to define zone width: 0.5*h	= 19.028 ft
Ph	= Net pressure at the top Of the wall per Table 27.5-1	= 47.82 psf
Po	= Net pressure at the base Of the wall per Table 27.5-1	= 43.53 psf
Ps	= Side Wall Press: Table 27.5-1: 0.2<= L/B <= 1, use 0.54*Ph	= -25.82 psf
Pl	= Leeward Wall Press: Table 27.5-1 : 0.2<= L/B <= 1, use 0.38*Ph	= -18.17 psf
Pwh	= Windward Wall Pressure at the Top per Table 27.5-1: Ph + Pl	= 29.65 psf
Pwo	= Windward Wall Pressure at the Base per Table 27.5-1: Po + Pl	= 25.36 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 1: 0.75*Pz1	= 32.22 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 2: 0.75*Pz1	= 4.67 psf
Povh3	= Overhang Bottom with Wind Par to Ridge, Load Case 1: 0.75*Pz3	= 32.88 psf
Povh3	= Overhang Bottom With Wind Par to Ridge, Load Case 2: 0.75*Pz3	= 0.00 psf
Lambda	= Exposure Adjustment Factor for Roofs per Table 27.5-2	= 1.000

Roof Pressures per Table 27.5-2 - Parallel to Ridge

Zone Pressures Parallel to Ridge

Zone	Load Case 1 psf	Load Case 2 psf
1	-42.95	6.23
2	-29.59	-8.74
3	-43.84	0.00
4	-39.06	0.00
5	-32.05	0.00

A pressure of zero '0' indicates that the load case is not applicable for that zone.

Components and Cladding (C&C) Calculations per Ch 30 Part 1:

h/W	= Ratio of mean roof height to building width	= 0.260
h/L	= Ratio of mean roof height to building length	= 0.431
h	= Mean Roof Height above grade	= 38.056 ft
Kh	= 15 ft [4.572 m]< Z <Zg -->(2.01*(Z/zg)^(2/Alpha) {Table 26.10-1}	= 1.033
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
LF	= Load Factor based upon ASD Design	= 0.60
qh	= (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF	= 41.29 psf
LHD	= Least Horizontal Dimension: Min(B, L)	= 88.330 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 8.833 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 8.833 ft
h/B	= Ratio of mean roof height to least hor dim: h / B	= 0.431

Wind Pressures for C&C Ch 30 Pt 1
All wind pressures include a load factor of 0.6

Description	Zone	Width	Span	Area	1/3 Rule	Ref Fig	GCp Max	GCp Min	p Max	p Min
ft		ft	ft	sq ft					psf	psf
W-A	4	3.830	2.330	8.92	No	30.3-1	1.000	-1.100	48.72	-52.85
W-A	5	3.830	2.330	8.92	No	30.3-1	1.000	-1.400	48.72	-65.24
W-B	4	5.170	1.670	8.63	No	30.3-1	1.000	-1.100	48.72	-52.85
W-B	5	5.170	1.670	8.63	No	30.3-1	1.000	-1.400	48.72	-65.24
W-C	4	2.330	4.170	9.72	No	30.3-1	1.000	-1.100	48.72	-52.85
W-C	5	2.330	4.170	9.72	No	30.3-1	1.000	-1.400	48.72	-65.24
W-D	4	2.830	1.670	4.73	No	30.3-1	1.000	-1.100	48.72	-52.85
W-D	5	2.830	1.670	4.73	No	30.3-1	1.000	-1.400	48.72	-65.24
W-E	4	3.670	10.500	38.54	No	30.3-1	0.897	-0.997	44.45	-48.58
W-E	5	3.670	10.500	38.54	No	30.3-1	0.897	-1.193	44.45	-56.70
W-F	4	2.670	10.500	36.75	Yes	30.3-1	0.900	-1.000	44.60	-48.73
W-F	5	2.670	10.500	36.75	Yes	30.3-1	0.900	-1.200	44.60	-57.00
W-G	4	3.670	5.170	18.97	No	30.3-1	0.951	-1.051	46.70	-50.82
W-G	5	3.670	5.170	18.97	No	30.3-1	0.951	-1.302	46.70	-61.18
W-H	4	4.670	5.170	24.14	No	30.3-1	0.932	-1.032	45.93	-50.06
W-H	5	4.670	5.170	24.14	No	30.3-1	0.932	-1.265	45.93	-59.66
W-I	4	2.670	7.500	20.03	No	30.3-1	0.947	-1.047	46.52	-50.65
W-I	5	2.670	7.500	20.03	No	30.3-1	0.947	-1.293	46.52	-60.84
W-J	4	2.830	1.670	4.73	No	30.3-1	1.000	-1.100	48.72	-52.85
W-J	5	2.830	1.670	4.73	No	30.3-1	1.000	-1.400	48.72	-65.24
W-K	4	4.250	9.670	41.10	No	30.3-1	0.892	-0.992	44.25	-48.38
W-K	5	4.250	9.670	41.10	No	30.3-1	0.892	-1.183	44.25	-56.29
W-L	4	4.500	3.000	13.50	No	30.3-1	0.977	-1.077	47.77	-51.90
W-L	5	4.500	3.000	13.50	No	30.3-1	0.977	-1.354	47.77	-63.34
D-1	4	3.830	8.670	33.21	No	30.3-1	0.908	-1.008	44.92	-49.05
D-1	5	3.830	8.670	33.21	No	30.3-1	0.908	-1.216	44.92	-57.64
D-2	4	2.670	7.500	20.03	No	30.3-1	0.947	-1.047	46.52	-50.65
D-2	5	2.670	7.500	20.03	No	30.3-1	0.947	-1.293	46.52	-60.84
D-3	4	3.750	9.670	36.26	No	30.3-1	0.901	-1.001	44.64	-48.77
D-3	5	3.750	9.670	36.26	No	30.3-1	0.901	-1.202	44.64	-57.08
D-4	4	5.000	10.830	54.15	No	30.3-1	0.870	-0.970	43.37	-47.50
D-4	5	5.000	10.830	54.15	No	30.3-1	0.870	-1.141	43.37	-54.54
D-5 GARAGE	4	1.000	10.000	33.33	Yes	30.3-1	0.908	-1.008	44.91	-49.04
D-5 GARAGE	5	1.000	10.000	33.33	Yes	30.3-1	0.908	-1.215	44.91	-57.62
D-6	4	4.170	7.000	29.19	No	30.3-1	0.918	-1.018	45.33	-49.46
D-6	5	4.170	7.000	29.19	No	30.3-1	0.918	-1.236	45.33	-58.46
D-7	4	4.250	9.670	41.10	No	30.3-1	0.892	-0.992	44.25	-48.38
D-7	5	4.250	9.670	41.10	No	30.3-1	0.892	-1.183	44.25	-56.29
LEVEL 1 WALL	4	1.000	15.580	80.91	Yes	30.3-1	0.840	-0.940	42.10	-46.23
LEVEL 1 WALL	5	1.000	15.580	80.91	Yes	30.3-1	0.840	-1.079	42.10	-52.00
LEVEL 2 WALL	4	1.000	11.670	45.40	Yes	30.3-1	0.884	-0.984	43.93	-48.06
LEVEL 2 WALL	5	1.000	11.670	45.40	Yes	30.3-1	0.884	-1.168	43.93	-55.66
GARAGE WALL	4	1.000	13.330	59.23	Yes	30.3-1	0.864	-0.964	43.09	-47.22
GARAGE WALL	5	1.000	13.330	59.23	Yes	30.3-1	0.864	-1.127	43.09	-53.97

Area = Span Length x Effective Width
1/3 Rule = Effective width need not be less than 1/3 of the span length
GCp = External Pressure Coefficients taken from Figures 30.3-1 through 30.3-7
p = Wind Pressure: qh*(GCp - GCpi) [Eqn 30.3-1]*
* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] {Includes LF}

MecaWind v2391

Software Developer: Meca Enterprises Inc., www.meca.biz, Copyright © 2020

Calculations Prepared by:
Rochell Engineering, Inc.
1500 NW 89th CT, Suite 212
0
0
Doral, FL, 0
Date: Sep 13, 2021
Designer: CA

Calculations Prepared For:
Client: Pacheco-Martinez & Associates LLC.
Project #: Main House
Location: 8965 SW 63RD COURT, FLORIDA 33156
Description:
De La Concepcion

File Location:
Y:\00_Projects\Pacheco-Martinez & Associates\
De La Concepcion Residence (Pacheco Architecture)\Calculations\Wind Analysis\Wind Load Table (Main House).wnd

Basic Wind Parameters

Wind Load Standard	= ASCE 7-16	Exposure Category	= C
Wind Design Speed	= 175.0 mph	Risk Category	= II
Structure Type	= Building	Building Type	= Enclosed

General Wind Settings

Incl_LF	= Include ASD Load Factor of 0.6 in Pressures	= True
DynType	= Dynamic Type of Structure	= Rigid
Zg	= Altitude (Ground Elevation) above Sea Level	= 0.000 ft
Bdist	= Base Elevation of Structure	= 0.000 ft
SDB	= Simple Diaphragm Building	= True
Reacs	= Show the Base Reactions in the output	= False
MWFRSType	= MWFRS Method Selected	= Ch 27 Pt 2

Topographic Factor per Fig 26.8-1

Topo	= Topographic Feature	= None
Kzt	= Topographic Factor	= 1.000

Building Inputs

RoofType: Building Roof Type	= Hipped	W : Width Perp to Ridge	= 146.170 ft
L : Length Along Ridge	= 88.330 ft	EHt : Eave Height	= 28.670 ft
Hip : Ridge Hipped Length	= 28.670 ft	RE : Roof Entry Method	= Slope
Slope : Slope of Roof	= 3.0 :12	Theta : Roof Slope	= 14.04 Deg
Par : Is there a Parapet	= False		

Exposure Constants per Table 26.11-1:

Alpha: Table 26.11-1 Const	= 9.500	Zg: Table 26.11-1 Const	= 900.000 ft
At: Table 26.11-1 Const	= 0.105	Bt: Table 26.11-1 Const	= 1.000
Am: Table 26.11-1 Const	= 0.154	Bm: Table 26.11-1 Const	= 0.650
C: Table 26.11-1 Const	= 0.200	Eps: Table 26.11-1 Const	= 0.200

Overhang Inputs:

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

Gust Factor Calculation:

Gust Factor Category I Rigid Structures - Simplified Method

G1	= For Rigid Structures (Nat. Freq.>1 Hz) use 0.85	= 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm	= 0.6 * Ht	= 22.833 ft
Izm	= Cc * (33 / Zm) ^ 0.167	= 0.213
Lzm	= L * (Zm / 33) ^ Epsilon	= 464.495
Q	= (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5	= 0.885
G2	= 0.925*((1+1.7*lzm*3.4*Q)/(1+1.7*3.4*lzm))	= 0.866

Gust Factor Used in Analysis

G	= Lessor Of G1 Or G2	= 0.850

Main Wind Force Resisting System (MWFRS) Calculations per Ch 27 Part 2:

h	= Mean Roof Height above grade	= 38.056 ft
Kh	= 15 ft [4.572 m]< Z <Zg -->(2.01*(Z/zg)^(2/Alpha) {Table 26.10-1}	= 1.033
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
Theta	= Slope of Roof	= 14.04 Deg
LF	= Load Factor based upon ASD Design	= 0.60

Wind Pressures per Ch 27 Part 2 - Normal to Ridge

All wind pressures include a load factor of 0.6

L	= Building Length Parallel To the Direction Of Wind	= 146.170 ft

B	= Building Width Normal To the Wind Direction	= 88.330 ft
L/B	= Ratio Of L / B	= 1.655
LHD	= Least Horizontal Dimension: Min(B, L)	= 88.330 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 8.833 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 8.833 ft
0.5*h	= Parameter used to define zone width: 0.5*h	= 19.028 ft
Ph	= Net pressure at the top Of the wall per Table 27.5-1	= 44.09 psf
Po	= Net pressure at the base Of the wall per Table 27.5-1	= 39.69 psf
Ps	= Side Wall Press: Table 27.5-1: 1 < L/B < 2, interpolate	= -26.70 psf
Pl	= Leeward Wall Press: Table 27.5-1 : 1 < L/B < 2, interpolate	= -13.58 psf
Pwh	= Windward Wall Pressure at the Top per Table 27.5-1: Ph + Pl	= 30.51 psf
Pwo	= Windward Wall Pressure at the Base per Table 27.5-1: Po + Pl	= 26.11 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 1: 0.75*Pz1	= 32.22 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 2: 0.75*Pz1	= 4.67 psf
Povh3	= Overhang Bottom with Wind Par to Ridge, Load Case 1: 0.75*Pz3	= 32.88 psf
Povh3	= Overhang Bottom With Wind Par to Ridge, Load Case 2: 0.75*Pz3	= 0.00 psf
Lambda	= Exposure Adjustment Factor for Roofs per Table 27.5-2	= 1.000

Roof Pressures per Table 27.5-2 - Normal to Ridge

Zone Pressures Normal to Ridge

Zone	Load Case 1 psf	Load Case 2 psf
1	-42.95	6.23
2	-29.59	-8.74
3	-43.84	0.00
4	-39.06	0.00
5	-32.05	0.00

A pressure of zero '0' indicates that the load case is not applicable for that zone.

Wind Pressures per Ch 27 Part 2 - Parallel to Ridge

All wind pressures include a load factor of 0.6

L	= Building Length Parallel To the Direction Of Wind	= 88.330 ft
B	= Building Width Normal To the Wind Direction	= 146.170 ft
L/B	= Ratio Of L / B	= 0.604
LHD	= Least Horizontal Dimension: Min(B, L)	= 88.330 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 8.833 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 8.833 ft
0.5*h	= Parameter used to define zone width: 0.5*h	= 19.028 ft
Ph	= Net pressure at the top Of the wall per Table 27.5-1	= 47.82 psf
Po	= Net pressure at the base Of the wall per Table 27.5-1	= 43.53 psf
Ps	= Side Wall Press: Table 27.5-1: 0.2<= L/B <= 1, use 0.54*Ph	= -25.82 psf
Pl	= Leeward Wall Press: Table 27.5-1 : 0.2<= L/B <= 1, use 0.38*Ph	= -18.17 psf
Pwh	= Windward Wall Pressure at the Top per Table 27.5-1: Ph + Pl	= 29.65 psf
Pwo	= Windward Wall Pressure at the Base per Table 27.5-1: Po + Pl	= 25.36 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 1: 0.75*Pz1	= 32.22 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 2: 0.75*Pz1	= 4.67 psf
Povh3	= Overhang Bottom with Wind Par to Ridge, Load Case 1: 0.75*Pz3	= 32.88 psf
Povh3	= Overhang Bottom With Wind Par to Ridge, Load Case 2: 0.75*Pz3	= 0.00 psf
Lambda	= Exposure Adjustment Factor for Roofs per Table 27.5-2	= 1.000

Roof Pressures per Table 27.5-2 - Parallel to Ridge

Zone Pressures Parallel to Ridge

Zone	Load Case 1 psf	Load Case 2 psf
1	-42.95	6.23
2	-29.59	-8.74
3	-43.84	0.00
4	-39.06	0.00
5	-32.05	0.00

A pressure of zero '0' indicates that the load case is not applicable for that zone.

Components and Cladding (C&C) Calculations per Ch 30 Part 1:

```
h/W       = Ratio of mean roof height to building width                    = 0.260
h/L       = Ratio of mean roof height to building length                   = 0.431
h         = Mean Roof Height above grade                                   = 38.056 ft
Kh        = 15 ft [4.572 m]< Z <Zg -->(2.01*(Z/zg)^(2/Alpha) {Table 26.10-1}= 1.033
Kzt       = Topographic Factor is 1 since no Topographic feature specified  = 1.000
Kd        = Wind Directionality Factor per Table 26.6-1                    = 0.85
GCPi      = Ref Table 26.13-1 for Enclosed Building                        = +/-0.18
LF        = Load Factor based upon ASD Design                              = 0.60
qh        = (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF                      = 41.29 psf
LHD       = Least Horizontal Dimension:  Min(B, L)                         = 88.330 ft
a1        = Min(0.1 * LHD,  0.4 * h                                        = 8.833 ft
a         = Max(a1, 0.04 * LHD, 3 ft [0.9 m])                              = 8.833 ft
h/B       = Ratio of mean roof height to least hor dim: h / B              = 0.431
```

Wind Pressures for C&C Ch 30 Pt 1
All wind pressures include a load factor of 0.6

Description	Zone	Width	Span	Area	1/3 Rule	Ref Fig	GCp Max	GCp Min	p Max	p Min
ft		ft	ft	sq ft					psf	psf
10 sq. ft.	1	1.000	5.500	10.08	Yes	30.3-2E	0.699	-1.300	36.28	-61.11
10 sq. ft.	2e	1.000	5.500	10.08	Yes	30.3-2E	0.699	-1.798	36.28	-81.68
10 sq. ft.	2r	1.000	5.500	10.08	Yes	30.3-2E	0.699	-2.397	36.28	-106.41
10 sq. ft.	3	1.000	5.500	10.08	Yes	30.3-2E	0.699	-1.798	36.28	-81.68
10 sq. ft.	4	1.000	5.500	10.08	Yes	30.3-1	0.999	-1.099	48.70	-52.83
10 sq. ft.	5	1.000	5.500	10.08	Yes	30.3-1	0.999	-1.399	48.70	-65.19
20 sq. ft.	1	1.000	7.750	20.02	Yes	30.3-2E	0.579	-1.300	31.36	-61.10
20 sq. ft.	2e	1.000	7.750	20.02	Yes	30.3-2E	0.579	-1.638	31.36	-75.06
20 sq. ft.	2r	1.000	7.750	20.02	Yes	30.3-2E	0.579	-2.145	31.36	-96.01
20 sq. ft.	3	1.000	7.750	20.02	Yes	30.3-2E	0.579	-1.638	31.36	-75.06
20 sq. ft.	4	1.000	7.750	20.02	Yes	30.3-1	0.947	-1.047	46.53	-50.65
20 sq. ft.	5	1.000	7.750	20.02	Yes	30.3-1	0.947	-1.294	46.53	-60.84
50 sq. ft.	1	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.137	25.08	-54.37
50 sq. ft.	2e	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.433	25.08	-66.62
50 sq. ft.	2r	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.824	25.08	-82.75
50 sq. ft.	3	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.433	25.08	-66.62
50 sq. ft.	4	1.000	12.000	48.00	Yes	30.3-1	0.880	-0.980	43.76	-47.89
50 sq. ft.	5	1.000	12.000	48.00	Yes	30.3-1	0.880	-1.159	43.76	-55.31
100 sq. ft.	1	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
100 sq. ft.	2e	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.244	19.82	-58.80
100 sq. ft.	2r	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.526	19.82	-70.45
100 sq. ft.	3	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.244	19.82	-58.80
100 sq. ft.	4	1.000	18.000	108.00	Yes	30.3-1	0.818	-0.918	41.19	-45.32
100 sq. ft.	5	1.000	18.000	108.00	Yes	30.3-1	0.818	-1.035	41.19	-50.17
200 sq. ft.	1	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
200 sq. ft.	2e	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
200 sq. ft.	2r	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.300	19.82	-61.11
200 sq. ft.	3	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
200 sq. ft.	4	1.000	25.000	208.33	Yes	30.3-1	0.767	-0.867	39.11	-43.24
200 sq. ft.	5	1.000	25.000	208.33	Yes	30.3-1	0.767	-0.934	39.11	-46.01
500 sq. ft.	1	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
500 sq. ft.	2e	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
500 sq. ft.	2r	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.300	19.82	-61.11
500 sq. ft.	3	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
500 sq. ft.	4	1.000	40.000	533.33	Yes	30.3-1	0.700	-0.800	36.34	-40.47
500 sq. ft.	5	1.000	40.000	533.33	Yes	30.3-1	0.700	-0.800	36.34	-40.47

```
Area     = Span Length x Effective Width
1/3 Rule = Effective width need not be less than 1/3 of the span length
GCp      = External Pressure Coefficients taken from Figures 30.3-1 through 30.3-7
p        = Wind Pressure:  qh*(GCp - GCpi)  [Eqn 30.3-1]*
* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] {Includes LF}
```

MecaWind v2391

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Date: Sep 13, 2021
Designer: CA

Calculations Prepared For:
Client: Pacheco-Martinez & Associates LLC.
Project #: Cabana
Location: 8965 SW 63RD COURT, FLORIDA 33156
Description:
De La Concepcion

File Location:
Y:\00_Projects\Pacheco-Martinez & Associates\
De La Concepcion Residence (Pacheco Architecture)\Calculations\Wind Analysis\Wind Load Pressure (Cabana).wnd

Basic Wind Parameters

Wind Load Standard	= ASCE 7-16	Exposure Category	= C
Wind Design Speed	= 175.0 mph	Risk Category	= II
Structure Type	= Building	Building Type	= Enclosed

General Wind Settings

Incl_LF	= Include ASD Load Factor of 0.6 in Pressures	= True
DynType	= Dynamic Type of Structure	= Rigid
Zg	= Altitude (Ground Elevation) above Sea Level	= 0.000 ft
Bdist	= Base Elevation of Structure	= 0.000 ft
SDB	= Simple Diaphragm Building	= True
Reacs	= Show the Base Reactions in the output	= False
MWFRSType	= MWFRS Method Selected	= Ch 27 Pt 1

Topographic Factor per Fig 26.8-1

Topo	= Topographic Feature	= None
Kzt	= Topographic Factor	= 1.000

Building Inputs

RoofType: Building Roof Type	= Hipped	W : Width Perp to Ridge	= 15.670 ft
L : Length Along Ridge	= 31.000 ft	EHt : Eave Height	= 15.170 ft
Hip : Ridge Hipped Length	= 15.170 ft	RE : Roof Entry Method	= Slope
Slope : Slope of Roof	= 3.0 :12	O_Ht : Override Mean Height (0 for default)	= 3.000 ft
Theta : Roof Slope	= 14.04 Deg	Par : Is there a Parapet	= False

Exposure Constants per Table 26.11-1:

Alpha:	Table 26.11-1 Const	= 9.500	Zg:	Table 26.11-1 Const	= 900.000 ft
At:	Table 26.11-1 Const	= 0.105	Bt:	Table 26.11-1 Const	= 1.000
Am:	Table 26.11-1 Const	= 0.154	Bm:	Table 26.11-1 Const	= 0.650
C:	Table 26.11-1 Const	= 0.200	Eps:	Table 26.11-1 Const	= 0.200

Overhang Inputs:

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

Main Wind Force Resisting System (MWFRS) Calculations per Ch 27 Part 1:

h	= Mean Roof Height above grade	= 3.000 ft
Kh	= Z < 15 ft [4.572 m]--> (2.01 * (15/zg)^(2/Alpha) {Table 26.10-1}	= 0.849
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
Zg	= Elevation above Sea Level	= 0.000 ft
Ke	= Ground Elevation Factor: Ke = e^-(0.0000362*Zg) {Table 26.9-1}	= 1.000
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
RA	= Roof Area	= 573.50 sq ft
LF	= Load Factor based upon ASD Design	= 0.60
qh	= (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF	= 33.94 psf
qin	= For Negative Internal Pressure of Enclosed Building use qh*LF	= 33.94 psf
qip	= For Positive Internal Pressure of Enclosed Building use qh*LF	= 33.94 psf

Gust Factor Calculation:

Gust Factor Category I Rigid Structures - Simplified Method

G1	= For Rigid Structures (Nat. Freq.>1 Hz) use 0.85	= 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm	= 0.6 * Ht	= 15.000 ft
Izm	= Cc * (33 / Zm) ^ 0.167	= 0.228
Lzm	= L * (Zm / 33) ^ Epsilon	= 427.057
Q	= (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5	= 0.959
G2	= 0.925*((1+1.7*Izm*3.4*Q)/(1+1.7*3.4*Izm))	= 0.903

Gust Factor Used in Analysis

G	= Lessor Of G1 Or G2	= 0.850

MWFRS Wind Normal to Ridge (Ref Fig 27.3-1)

h	= Mean Roof Height Of Building	= 3.000 ft
RHt	= Ridge Height Of Roof	= 17.629 ft
B	= Horizontal Dimension Of Building Normal To Wind Direction	= 31.000 ft
L	= Horizontal Dimension Of building Parallel To Wind Direction	= 15.670 ft
L/B	= Ratio Of L/B used For Cp determination	= 0.505
h/L	= Ratio Of h/L used For Cp determination	= 0.191
Slope	= Slope of Roof	= 14.04 Deg
OH_Top_+Y	= Overhang Top +Y (Leeward)	= -0.46, -0.46
OH_Top_-Y	= Overhang Top Windward Edge	= -0.03, -0.54
OH_X	= Overhang Top +/-X Coeff (0 to h/2) (0.000 ft to 1.500 ft)	= -0.18, -0.9
OH_X	= Overhang Top +/-X Coeff (h/2 to h) (1.500 ft to 2.000 ft)	= -0.18, -0.9
OH_X	= Overhang Top +/-X Coeff (h/2 to h) (2.000 ft to 3.000 ft)	= -0.18, -0.9
OH_X	= Overhang Top +/-X Coeff (h to 2h) (3.000 ft to 6.000 ft)	= -0.18, -0.5
OH_X	= Overhang Top +/-X Coeff (>2h) (>6.000 ft)	= -0.18, -0.3
OH_X	= Overhang Top +/-X Coeff (>2h) (>9.835 ft)	= -0.18, -0.3
OH_X	= Overhang Top +/-X Coeff (>2h) (>17.670 ft)	= -0.18, -0.3
Roof_LW	= Roof (Leeward)	= -0.46, -0.46
Roof_WW	= Roof (Windward)	= -0.03, -0.54
Roof_X	= Roof +/-X Coeff (h/2 to h) (2.000 ft to 3.000 ft)	= -0.18, -0.9
Roof_X	= Roof +/-X Coeff (h to 2h) (3.000 ft to 6.000 ft)	= -0.18, -0.5
Roof_X	= Roof +/-X Coeff (>2h) (>6.000 ft)	= -0.18, -0.3
Sofit_-Y	= Overhang Sofit -Y	= 0.8, 0.8

Cp_WW	= Windward Wall Coefficient (All L/B Values)	= 0.80
Cp_LW	= Leward Wall Coefficient using L/B	= -0.50
Cp_SW	= Side Wall Coefficient (All L/B values)	= -0.70
GCpn_WW	= Parapet Combined Net Pressure Coefficient (Windward Parapet)	= 1.50
GCpn_LW	= Parapet Combined Net Pressure Coefficient (Leeward Parapet)	= -1.00

Wall Wind Pressures based On Positive Internal Pressure (+GCPi) - Normal to Ridge
All wind pressures include a load factor of 0.6

Elev ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
15.17	0.851	1.000	34.02	0.18	17.03	-20.53	-26.30	37.56	9.60
10.17	0.849	1.000	33.94	0.18	16.97	-20.53	-26.30	37.51	9.60
5.17	0.849	1.000	33.94	0.18	16.97	-20.53	-26.30	37.51	9.60
3.00	0.849	1.000	33.94	0.18	16.97	-20.53	-26.30	37.51	9.60

Wall Wind Pressures based on Negative Internal Pressure (-GCPi) - Normal to Ridge
All wind pressures include a load factor of 0.6

Elev ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
15.17	0.851	1.000	34.02	-0.18	29.24	-8.32	-14.09	37.56	9.60
10.17	0.849	1.000	33.94	-0.18	29.19	-8.32	-14.09	37.51	9.60
5.17	0.849	1.000	33.94	-0.18	29.19	-8.32	-14.09	37.51	9.60
3.00	0.849	1.000	33.94	-0.18	29.19	-8.32	-14.09	37.51	9.60

Notes Wall Pressures:

Kz	= Velocity Press Exp Coeff	Kzt	= Topographical Factor
qz	= 0.00256*Kz*Kzt*Kd*V^2	GCPi	= Internal Press Coefficient
Side	= qh * G * Cp_SW - qip * +GCPi	Windward	= qz * G * Cp_WW - qip * +GCPi
Leeward	= qh * G * Cp_LW - qip * +GCPi	Total	= Windward Press - Leeward Press

* Minimum Pressure: Para 27.1.5 no less than 9.60 psf (Incl LF) applied to Walls

\+ Pressures Acting TOWARD Surface - Pressures Acting AWAY from Surface

Roof Wind Pressures for Positive & Negative Internal Pressure (+/- GCPi) - Normal to Ridge
All wind pressures include a load factor of 0.6

Roof Var	Start Dist ft	End Dist ft	Cp_min	Cp_max	GCPi	Pressure Pn_min* psf	Pressure Pp_min* psf	Pressure Pn_max psf	Pressure Pp_max psf
OH_Top_+Y	N/A	N/A	-0.460	-0.460	0.180	-7.16	-19.38	-7.16	-19.38
OH_Top_+Y	N/A	N/A	-0.460	-0.460	0.180	-7.16	-19.38	-7.16	-19.38
OH_Top_-Y	N/A	N/A	-0.030	-0.540	0.180	5.24	-6.98	-9.47	-21.69
OH_Top_-Y	N/A	N/A	-0.030	-0.540	0.180	5.24	-6.98	-9.47	-21.69
OH_X (+X)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (-X)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (+X)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (-X)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (+X)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07

OH_X (-X)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (+X)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_X (-X)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_X (+X)	6.000	9.835	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (-X)	6.000	9.835	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (+X)	9.835	17.670	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (-X)	9.835	17.670	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (+X)	17.670	19.670	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (-X)	17.670	19.670	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Roof_LW	N/A	N/A	-0.460	-0.460	0.180	-7.16	-19.38	-7.16	-19.38
Roof_WW	N/A	N/A	-0.030	-0.540	0.180	5.24	-6.98	-9.47	-21.69
Roof_X (+X)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof_X (-X)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof_X (+X)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof_X (-X)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof_X (+X)	6.000	17.670	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Roof_X (-X)	6.000	17.670	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Sofit_-Y	N/A	N/A	0.800	0.800	0.180	29.19	16.97	29.19	16.97

Notes Roof Pressures:
Start Dist = Start Dist from Windward Edge End Dist = End Dist from Windward Edge
Cp_Max = Largest Coefficient Magnitude Cp_Min = Smallest Coefficient Magnitude
Pp_max = qh*G*Cp_max - qip*(+GCPi) Pn_max = qh*G*Cp_max - qin*(-GCpi)
Pp_min* = qh*G*Cp_min - qip*(+GCPi) Pn_min* = qh*G*Cp_min - qin*(-GCPi)
OH = Overhang X = Dir along Ridge Y = Dir Perpendcular to Ridge Z = Vertical
* The smaller uplift pressures due to Cp_Min can become critical when wind is combined with roof live load or snow load; load combinations are given in ASCE 7
+ Pressures Acting TOWARD Surface - Pressures Acting AWAY from Surface

MWFRS Wind Parallel to Ridge (Ref Fig 27.3-1)

h	= Mean Roof Height Of Building	= 3.000 ft
RHt	= Ridge Height Of Roof	= 17.629 ft
B	= Horizontal Dimension Of Building Normal To Wind Direction	= 15.670 ft
L	= Horizontal Dimension Of building Parallel To Wind Direction	= 31.000 ft
L/B	= Ratio Of L/B used For Cp determination	= 1.978
h/L	= Ratio Of h/L used For Cp determination	= 0.097
Slope	= Slope of Roof	= 14.04 Deg
Hip_End	= Hipped End Coeff (h/2 to h) (2.000 ft to 3.000 ft)	= -0.18, -0.9
Hip_End	= Hipped End Coeff (h to 2h) (3.000 ft to 6.000 ft)	= -0.18, -0.5
Hip_End	= Hipped End Coeff (>2h) (>6.000 ft)	= -0.18, -0.3
Hip_End	= Hipped End Coeff (>2h) (>25.085 ft)	= -0.18, -0.3
OH_Bot	= Sofit (Windward Face Only)	= 0.8, 0.8
OH_Top	= Overhang Top Coeff (0 to h/2) (0.000 ft to 1.500 ft)	= -0.18, -0.9
OH_Top	= Overhang Top Coeff (h/2 to h) (1.500 ft to 2.000 ft)	= -0.18, -0.9
OH_Top	= Overhang Top Coeff (h/2 to h) (2.000 ft to 3.000 ft)	= -0.18, -0.9
OH_Top	= Overhang Top Coeff (h to 2h) (3.000 ft to 6.000 ft)	= -0.18, -0.5
OH_Top	= Overhang Top Coeff (>2h) (>6.000 ft)	= -0.18, -0.3
OH_Top	= Overhang Top Coeff (>2h) (>17.500 ft)	= -0.18, -0.3
OH_Top	= Overhang Top Coeff (>2h) (>33.000 ft)	= -0.18, -0.3
Roof	= Roof Coeff (h/2 to h) (2.000 ft to 3.000 ft)	= -0.18, -0.9
Roof	= Roof Coeff (h to 2h) (3.000 ft to 6.000 ft)	= -0.18, -0.5
Roof	= Roof Coeff (>2h) (>6.000 ft)	= -0.18, -0.3
Cp_WW	= Windward Wall Coefficient (All L/B Values)	= 0.80
Cp_LW	= Leward Wall Coefficient using L/B	= -0.30
Cp_SW	= Side Wall Coefficient (All L/B values)	= -0.70
GCpn_WW	= Parapet Combined Net Pressure Coefficient (Windward Parapet)	= 1.50
GCpn_LW	= Parapet Combined Net Pressure Coefficient (Leeward Parapet)	= -1.00

Wall Wind Pressures based On Positive Internal Pressure (+GCPi) - Parallel to Ridge
All wind pressures include a load factor of 0.6

Elev ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
15.17	0.851	1.000	34.02	0.18	17.03	-14.89	-26.30	31.92	9.60
10.17	0.849	1.000	33.94	0.18	16.97	-14.89	-26.30	31.86	9.60
5.17	0.849	1.000	33.94	0.18	16.97	-14.89	-26.30	31.86	9.60
3.00	0.849	1.000	33.94	0.18	16.97	-14.89	-26.30	31.86	9.60

Wall Wind Pressures based on Negative Internal Pressure (-GCPi) - Parallel to Ridge
All wind pressures include a load factor of 0.6

Elev ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf

15.17	0.851	1.000	34.02	-0.18	29.24	-2.67	-14.09	31.92	9.60
10.17	0.849	1.000	33.94	-0.18	29.19	-2.67	-14.09	31.86	9.60
5.17	0.849	1.000	33.94	-0.18	29.19	-2.67	-14.09	31.86	9.60
3.00	0.849	1.000	33.94	-0.18	29.19	-2.67	-14.09	31.86	9.60

Notes Wall Pressures:
Kz = Velocity Press Exp Coeff
Kzt = Topographical Factor
qz = 0.00256*Kz*Kzt*Kd*V^2
GCPi = Internal Press Coefficient
Side = qh * G * Cp_SW - qip * +GCPi
Windward = qz * G * Cp_WW - qip * +GCPi
Leeward = qh * G * Cp_LW - qip * +GCPi
Total = Windward Press - Leeward Press
* Minimum Pressure: Para 27.1.5 no less than 9.60 psf (Incl LF) applied to Walls
+ Pressures Acting TOWARD Surface
- Pressures Acting AWAY from Surface

Roof Wind Pressures for Positive & Negative Internal Pressure (+/- GCPi) - Parallel to Ridge
All wind pressures include a load factor of 0.6

Roof Var	Start Dist ft	End Dist ft	Cp_min	Cp_max	GCPi	Pressure Pn_min* psf	Pressure Pp_min* psf	Pressure Pn_max psf	Pressure Pp_max psf
Hip_End (-X)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Hip_End (-X)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Hip_End (-X)	6.000	9.915	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Hip_End (+X)	25.085	33.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Bot	N/A	N/A	0.800	0.800	0.180	29.19	16.97	29.19	16.97
OH_Top (-X)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-X)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-X)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-X)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (+Y)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-Y)	0.000	1.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-X)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-X)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-X)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-X)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (+Y)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-Y)	1.500	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (+Y)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (-Y)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_Top (+Y)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_Top (-Y)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_Top (+Y)	6.000	17.500	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (-Y)	6.000	17.500	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (+Y)	17.500	33.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (-Y)	17.500	33.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (+X)	33.000	35.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (+X)	33.000	35.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (+X)	33.000	35.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (+X)	33.000	35.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (+Y)	33.000	35.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Top (-Y)	33.000	35.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Roof (+Y)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof (-Y)	2.000	3.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof (+Y)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof (-Y)	3.000	6.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof (+Y)	6.000	33.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Roof (-Y)	6.000	33.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76

Notes Roof Pressures:
Start Dist = Start Dist from Windward Edge
End Dist = End Dist from Windward Edge
Cp_Max = Largest Coefficient Magnitude
Cp_Min = Smallest Coefficient Magnitude
Pp_max = qh*G*Cp_max - qip*(+GCPi)
Pn_max = qh*G*Cp_max - qin*(-GCpi)
Pp_min* = qh*G*Cp_min - qip*(+GCPi)
Pn_min* = qh*G*Cp_min - qin*(-GCPi)
OH = Overhang X = Dir along Ridge Y = Dir Perpendcular to Ridge Z = Vertical
* The smaller uplift pressures due to Cp_Min can become critical when wind is combined with roof live load or snow load; load combinations are given in ASCE 7
+ Pressures Acting TOWARD Surface
- Pressures Acting AWAY from Surface

Components and Cladding (C&C) Calculations per Ch 30 Part 4:

h	= Mean Roof Height	= 3.000 ft
LF	= Load Factor based upon ASD Design	= 0.60
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
EAF	= Adjustment factor per Table 30.6-2 to Fig 30.4-1 pressures	= 0.242
Slope	= Roof Slope	= 14.04 Deg
LHD	= Least Horizontal Dimension: Min(B, L)	= 15.670 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 1.200 ft

a = Max(a1, 0.04 * LHD, 3 ft [0.9 m]) = 3.000 ft
2a = Parameter used to define zone width: 2*a = 6.000 ft
EAF = Adjustment factor per Table 30.6-2 to Fig 30.4-1 pressures = 0.242

Wind Pressures for Components and Cladding per Fig 30.4-1
All wind pressures include a load factor of 0.6

Description	Zone	Width ft	Span ft	Area ft	1/3 Rule	Ptable Pos psf	Ptable Neg psf	p Pos psf	p Neg psf
W-AA	4	2.830	1.670	4.726	No	55.25	-59.90	9.60	-9.60
W-AA	5	2.830	1.670	4.726	No	55.25	-73.93	9.60	-10.75
D-1A	4	3.750	9.670	36.263	No	50.97	-55.62	9.60	-9.60
D-1A	5	3.750	9.670	36.263	No	50.97	-65.38	9.60	-9.60
LEVEL 1 WALLS	4	1.000	14.670	71.736	Yes	48.38	-53.03	9.60	-9.60
LEVEL 1 WALLS	5	1.000	14.670	71.736	Yes	48.38	-60.21	9.60	-9.60

Ptable = Pressure taken from Fig 30.4-1
p = Wind Pressure: Ptable * Lambda * Kzt * LF [Eqn 30.7-1 & Table 30.6-2 Note 5]
* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] {Includes LF}
Pressures on overhangs include Pressure from the top and bottom surface of overhang

MecaWind v2391

Software Developer: Meca Enterprises Inc., www.meca.biz, Copyright © 2020

Calculations Prepared by:
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0
Doral, FL, 0
Date: Sep 13, 2021
Designer: CA

Calculations Prepared For:
Client: Pacheco-Martinez & Associates LLC.
Project #: Cabana
Location: 8965 SW 63RD COURT, FLORIDA 33156
Description:
De La Concepcion

File Location:
Y:\00_Projects\Pacheco-Martinez & Associates\
De La Concepcion Residence (Pacheco Architecture)\Calculations\Wind Analysis\Wind Load Table (Cabana).wnd

Basic Wind Parameters

Wind Load Standard	= ASCE 7-16	Exposure Category	= C
Wind Design Speed	= 175.0 mph	Risk Category	= II
Structure Type	= Building	Building Type	= Enclosed

General Wind Settings

Incl_LF	= Include ASD Load Factor of 0.6 in Pressures	= True
DynType	= Dynamic Type of Structure	= Rigid
Zg	= Altitude (Ground Elevation) above Sea Level	= 0.000 ft
Bdist	= Base Elevation of Structure	= 0.000 ft
SDB	= Simple Diaphragm Building	= True
Reacs	= Show the Base Reactions in the output	= False
MWFRSType	= MWFRS Method Selected	= Ch 27 Pt 2

Topographic Factor per Fig 26.8-1

Topo	= Topographic Feature	= None
Kzt	= Topographic Factor	= 1.000

Building Inputs

RoofType: Building Roof Type	= Hipped	W : Width Perp to Ridge	= 15.670 ft
L : Length Along Ridge	= 31.000 ft	EHt : Eave Height	= 6.830 ft
Hip : Ridge Hipped Length	= 13.830 ft	RE : Roof Entry Method	= Slope
Slope : Slope of Roof	= 3.0 :12	O_Ht : Override Mean Height (0 for default)	= 3.000 ft
Theta : Roof Slope	= 14.04 Deg	Par : Is there a Parapet	= False

Exposure Constants per Table 26.11-1:

Alpha:	Table 26.11-1 Const	= 9.500	Zg:	Table 26.11-1 Const	= 900.000 ft
At:	Table 26.11-1 Const	= 0.105	Bt:	Table 26.11-1 Const	= 1.000
Am:	Table 26.11-1 Const	= 0.154	Bm:	Table 26.11-1 Const	= 0.650
C:	Table 26.11-1 Const	= 0.200	Eps:	Table 26.11-1 Const	= 0.200

Overhang Inputs:

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

Gust Factor Calculation:

Gust Factor Category I Rigid Structures - Simplified Method

G1	= For Rigid Structures (Nat. Freq.>1 Hz) use 0.85	= 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm	= 0.6 * Ht	= 15.000 ft
Izm	= Cc * (33 / Zm) ^ 0.167	= 0.228
Lzm	= L * (Zm / 33) ^ Epsilon	= 427.057
Q	= (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5	= 0.959
G2	= 0.925*((1+1.7*lzm*3.4*Q)/(1+1.7*3.4*lzm))	= 0.903

Gust Factor Used in Analysis

G	= Lessor Of G1 Or G2	= 0.850

Main Wind Force Resisting System (MWFRS) Calculations per Ch 27 Part 2:

h	= Mean Roof Height above grade	= 3.000 ft
Kh	= Z < 15 ft [4.572 m]--> (2.01 * (15/zg)^(2/Alpha) {Table 26.10-1}	= 0.849
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
Theta	= Slope of Roof	= 14.04 Deg
LF	= Load Factor based upon ASD Design	= 0.60

Wind Pressures per Ch 27 Part 2 - Normal to Ridge

All wind pressures include a load factor of 0.6

L	= Building Length Parallel To the Direction Of Wind	= 15.670 ft

B	= Building Width Normal To the Wind Direction	= 31.000 ft
L/B	= Ratio Of L / B	= 0.505
LHD	= Least Horizontal Dimension: Min(B, L)	= 15.670 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 1.200 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 3.000 ft
0.5*h	= Parameter used to define zone width: 0.5*h	= 1.500 ft
Ph	= Net pressure at the top Of the wall per Table 27.5-1	= 38.70 psf
Po	= Net pressure at the base Of the wall per Table 27.5-1	= 38.70 psf
Ps	= Side Wall Press: Table 27.5-1: 0.2<= L/B <= 1, use 0.54*Ph	= -20.90 psf
Pl	= Leeward Wall Press: Table 27.5-1 : 0.2<= L/B <= 1, use 0.38*Ph	= -14.71 psf
Pwh	= Windward Wall Pressure at the Top per Table 27.5-1: Ph + Pl	= 23.99 psf
Pwo	= Windward Wall Pressure at the Base per Table 27.5-1: Po + Pl	= 23.99 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 1: 0.75*Pz1	= 26.49 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 2: 0.75*Pz1	= 3.87 psf
Povh3	= Overhang Bottom with Wind Par to Ridge, Load Case 1: 0.75*Pz3	= 27.03 psf
Povh3	= Overhang Bottom With Wind Par to Ridge, Load Case 2: 0.75*Pz3	= 0.00 psf
Lambda	= Exposure Adjustment Factor for Roofs per Table 27.5-2	= 1.000

Roof Pressures per Table 27.5-2 - Normal to Ridge

Zone Pressures Normal to Ridge

Zone	Load Case 1 psf	Load Case 2 psf
1	-35.32	5.16
2	-24.34	-7.20
3	-36.05	0.00
4	-32.18	0.00
5	-26.37	0.00

A pressure of zero '0' indicates that the load case is not applicable for that zone.

Wind Pressures per Ch 27 Part 2 - Parallel to Ridge

All wind pressures include a load factor of 0.6

L	= Building Length Parallel To the Direction Of Wind	= 31.000 ft
B	= Building Width Normal To the Wind Direction	= 15.670 ft
L/B	= Ratio Of L / B	= 1.978
LHD	= Least Horizontal Dimension: Min(B, L)	= 15.670 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 1.200 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 3.000 ft
0.5*h	= Parameter used to define zone width: 0.5*h	= 1.500 ft
Ph	= Net pressure at the top Of the wall per Table 27.5-1	= 33.78 psf
Po	= Net pressure at the base Of the wall per Table 27.5-1	= 33.78 psf
Ps	= Side Wall Press: Table 27.5-1: 1 < L/B < 2, interpolate	= -21.55 psf
Pl	= Leeward Wall Press: Table 27.5-1 : 1 < L/B < 2, interpolate	= -9.20 psf
Pwh	= Windward Wall Pressure at the Top per Table 27.5-1: Ph + Pl	= 24.58 psf
Pwo	= Windward Wall Pressure at the Base per Table 27.5-1: Po + Pl	= 24.58 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 1: 0.75*Pz1	= 26.49 psf
Povh1	= Overhang Bottom with Roof Slope > 10 Deg, Load Case 2: 0.75*Pz1	= 3.87 psf
Povh3	= Overhang Bottom with Wind Par to Ridge, Load Case 1: 0.75*Pz3	= 27.03 psf
Povh3	= Overhang Bottom With Wind Par to Ridge, Load Case 2: 0.75*Pz3	= 0.00 psf
Lambda	= Exposure Adjustment Factor for Roofs per Table 27.5-2	= 1.000

Roof Pressures per Table 27.5-2 - Parallel to Ridge

Zone Pressures Parallel to Ridge

Zone	Load Case 1 psf	Load Case 2 psf
1	-35.32	5.16
2	-24.34	-7.20
3	-36.05	0.00
4	-32.18	0.00
5	-26.37	0.00

A pressure of zero '0' indicates that the load case is not applicable for that zone.

Components and Cladding (C&C) Calculations per Ch 30 Part 1:

h/W	= Ratio of mean roof height to building width	= 0.191
h/L	= Ratio of mean roof height to building length	= 0.097
h	= Mean Roof Height above grade	= 3.000 ft
Kh	= Z < 15 ft [4.572 m]--> (2.01 * (15/zg)^(2/Alpha) {Table 26.10-1}	= 0.849
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
LF	= Load Factor based upon ASD Design	= 0.60
qh	= (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF	= 33.94 psf
LHD	= Least Horizontal Dimension: Min(B, L)	= 15.670 ft
a1	= Min(0.1 * LHD, 0.4 * h	= 1.200 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 3.000 ft
h/B	= Ratio of mean roof height to least hor dim: h / B	= 0.191

Wind Pressures for C&C Ch 30 Pt 1
All wind pressures include a load factor of 0.6

Description	Zone	Width ft	Span ft	Area sq ft	1/3 Rule	Ref Fig	GCp Max	GCp Min	p Max psf	p Min psf
10 sq. ft.	1	1.000	5.500	10.08	Yes	30.3-2E	0.699	-1.300	29.82	-50.23
10 sq. ft.	2e	1.000	5.500	10.08	Yes	30.3-2E	0.699	-1.798	29.82	-67.14
10 sq. ft.	2r	1.000	5.500	10.08	Yes	30.3-2E	0.699	-2.397	29.82	-87.47
10 sq. ft.	3	1.000	5.500	10.08	Yes	30.3-2E	0.699	-1.798	29.82	-67.14
10 sq. ft.	4	1.000	5.500	10.08	Yes	30.3-1	0.999	-1.099	40.03	-43.42
10 sq. ft.	5	1.000	5.500	10.08	Yes	30.3-1	0.999	-1.399	40.03	-53.58
20 sq. ft.	1	1.000	7.750	20.02	Yes	30.3-2E	0.579	-1.300	25.78	-50.23
20 sq. ft.	2e	1.000	7.750	20.02	Yes	30.3-2E	0.579	-1.638	25.78	-61.70
20 sq. ft.	2r	1.000	7.750	20.02	Yes	30.3-2E	0.579	-2.145	25.78	-78.92
20 sq. ft.	3	1.000	7.750	20.02	Yes	30.3-2E	0.579	-1.638	25.78	-61.70
20 sq. ft.	4	1.000	7.750	20.02	Yes	30.3-1	0.947	-1.047	38.24	-41.64
20 sq. ft.	5	1.000	7.750	20.02	Yes	30.3-1	0.947	-1.294	38.24	-50.01
50 sq. ft.	1	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.137	20.62	-44.69
50 sq. ft.	2e	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.433	20.62	-54.76
50 sq. ft.	2r	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.824	20.62	-68.02
50 sq. ft.	3	1.000	12.000	48.00	Yes	30.3-2E	0.428	-1.433	20.62	-54.76
50 sq. ft.	4	1.000	12.000	48.00	Yes	30.3-1	0.880	-0.980	35.97	-39.36
50 sq. ft.	5	1.000	12.000	48.00	Yes	30.3-1	0.880	-1.159	35.97	-45.46
100 sq. ft.	1	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.000	16.29	-40.05
100 sq. ft.	2e	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.244	16.29	-48.33
100 sq. ft.	2r	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.526	16.29	-57.91
100 sq. ft.	3	1.000	18.000	108.00	Yes	30.3-2E	0.300	-1.244	16.29	-48.33
100 sq. ft.	4	1.000	18.000	108.00	Yes	30.3-1	0.818	-0.918	33.86	-37.25
100 sq. ft.	5	1.000	18.000	108.00	Yes	30.3-1	0.818	-1.035	33.86	-41.24
200 sq. ft.	1	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.000	16.29	-40.05
200 sq. ft.	2e	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.100	16.29	-43.45
200 sq. ft.	2r	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.300	16.29	-50.23
200 sq. ft.	3	1.000	25.000	208.33	Yes	30.3-2E	0.300	-1.100	16.29	-43.45
200 sq. ft.	4	1.000	25.000	208.33	Yes	30.3-1	0.767	-0.867	32.15	-35.54
200 sq. ft.	5	1.000	25.000	208.33	Yes	30.3-1	0.767	-0.934	32.15	-37.82
500 sq. ft.	1	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.000	16.29	-40.05
500 sq. ft.	2e	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.100	16.29	-43.45
500 sq. ft.	2r	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.300	16.29	-50.23
500 sq. ft.	3	1.000	40.000	533.33	Yes	30.3-2E	0.300	-1.100	16.29	-43.45
500 sq. ft.	4	1.000	40.000	533.33	Yes	30.3-1	0.700	-0.800	29.87	-33.26
500 sq. ft.	5	1.000	40.000	533.33	Yes	30.3-1	0.700	-0.800	29.87	-33.26

Area = Span Length x Effective Width
1/3 Rule = Effective width need not be less than 1/3 of the span length
GCp = External Pressure Coefficients taken from Figures 30.3-1 through 30.3-7
p = Wind Pressure: qh*(GCp - GCpi) [Eqn 30.3-1]*
* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] {Includes LF}

ROCHELL ENGINEERING, INC.

Roof Truss Reactions

(MAIN House)

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Components and Cladding (C&C) Calculations per Ch 30 Part 1:

h/W	= Ratio of mean roof height to building width	= 0.260
h/L	= Ratio of mean roof height to building length	= 0.431
h	= Mean Roof Height above grade	= 38.056 ft
Kh	= 15 ft [4.572 m]< Z <Zg -->(2.01*(Z/zg)^(2/Alpha) {Table 26.10-1}	= 1.033
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
LF	= Load Factor based upon ASD Design	= 0.60
qh	= (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF	= 41.29 psf
LHD	= Least Horizontal Dimension: Min(B, L)	= 88.330 ft
a1	= Min(0.1 * LHD, 0.4 * h)	= 8.833 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 8.833 ft
h/B	= Ratio of mean roof height to least hor dim: h / B	= 0.431

Wind Pressures for C&C Ch 30 Pt 1
All wind pressures include a load factor of 0.6

Description	Zone	Width ft	Span ft	Area sq ft	1/3 Rule	Ref Fig	GCp Max	GCp Min	p Max psf	p Min psf
T-1	1	2.000	5.000	10.00	No	30.3-2E	0.700	-1.300	36.34	-61.11
T-1	2e	2.000	5.000	10.00	No	30.3-2E	0.700	-1.800	36.34	-81.76
T-1	2r	2.000	5.000	10.00	No	30.3-2E	0.700	-2.400	36.34	-106.53
T-2	1	2.000	14.500	70.08	Yes	30.3-2E	0.362	-1.066	22.37	-51.46
T-2	2e	2.000	14.500	70.08	Yes	30.3-2E	0.362	-1.345	22.37	-62.97
T-2	2r	2.000	14.500	70.08	Yes	30.3-2E	0.362	-1.685	22.37	-77.01
T-3	1	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.054	21.88	-50.94
T-3	2e	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.329	21.88	-62.32
T-3	2r	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.660	21.88	-75.98
T-4	1	2.000	8.000	21.33	Yes	30.3-2E	0.568	-1.288	30.90	-60.61
T-4	2e	2.000	8.000	21.33	Yes	30.3-2E	0.568	-1.623	30.90	-74.45
T-4	2r	2.000	8.000	21.33	Yes	30.3-2E	0.568	-2.122	30.90	-95.04
T-5	1	2.000	22.500	168.75	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
T-5	2e	2.000	22.500	168.75	Yes	30.3-2E	0.300	-1.140	19.82	-54.49
T-5	2r	2.000	22.500	168.75	Yes	30.3-2E	0.300	-1.362	19.82	-63.69
T-6	1	2.000	7.000	16.33	Yes	30.3-2E	0.615	-1.300	32.82	-61.11
T-6	2e	2.000	7.000	16.33	Yes	30.3-2E	0.615	-1.685	32.82	-77.02
T-6	2r	2.000	7.000	16.33	Yes	30.3-2E	0.615	-2.220	32.82	-99.09
T-7	1	2.000	25.670	219.65	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
T-7	2e	2.000	25.670	219.65	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
T-7	2r	2.000	25.670	219.65	Yes	30.3-2E	0.300	-1.300	19.82	-61.11
T-8	1	2.000	5.000	10.00	No	30.3-2E	0.700	-1.300	36.34	-61.11
T-8	2e	2.000	5.000	10.00	No	30.3-2E	0.700	-1.800	36.34	-81.76
T-8	2r	2.000	5.000	10.00	No	30.3-2E	0.700	-2.400	36.34	-106.53
T-9	1	2.000	42.170	592.77	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
T-9	2e	2.000	42.170	592.77	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
T-9	2r	2.000	42.170	592.77	Yes	30.3-2E	0.300	-1.300	19.82	-61.11
T-10	1	2.000	17.330	100.11	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
T-10	2e	2.000	17.330	100.11	Yes	30.3-2E	0.300	-1.262	19.82	-59.53
T-10	2r	2.000	17.330	100.11	Yes	30.3-2E	0.300	-1.554	19.82	-71.60
GT-1	1	2.000	14.500	70.08	Yes	30.3-2E	0.362	-1.066	22.37	-51.46
GT-1	2e	2.000	14.500	70.08	Yes	30.3-2E	0.362	-1.345	22.37	-62.97
GT-1	2r	2.000	14.500	70.08	Yes	30.3-2E	0.362	-1.685	22.37	-77.01
GT-2	1	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.054	21.88	-50.94
GT-2	2e	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.329	21.88	-62.32
GT-2	2r	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.660	21.88	-75.98
GT-3	1	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.054	21.88	-50.94
GT-3	2e	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.329	21.88	-62.32
GT-3	2r	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.660	21.88	-75.98
GT-4	1	2.000	25.670	219.65	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
GT-4	2e	2.000	25.670	219.65	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
GT-4	2r	2.000	25.670	219.65	Yes	30.3-2E	0.300	-1.300	19.82	-61.11
GT-5	1	2.000	42.140	591.93	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
GT-5	2e	2.000	42.140	591.93	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
GT-5	1	2.000	42.170	592.77	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
GT-5	2e	2.000	42.170	592.77	Yes	30.3-2E	0.300	-1.100	19.82	-52.85
GT-5	2r	2.000	42.170	592.77	Yes	30.3-2E	0.300	-1.300	19.82	-61.11
GT-6	1	2.000	5.000	10.00	No	30.3-2E	0.700	-1.300	36.34	-61.11
GT-6	2e	2.000	5.000	10.00	No	30.3-2E	0.700	-1.800	36.34	-81.76
GT-6	2r	2.000	5.000	10.00	No	30.3-2E	0.700	-2.400	36.34	-106.53
GT-7	1	2.000	17.330	100.11	Yes	30.3-2E	0.300	-1.000	19.82	-48.72
GT-7	2e	2.000	17.330	100.11	Yes	30.3-2E	0.300	-1.262	19.82	-59.53
GT-7	2r	2.000	17.330	100.11	Yes	30.3-2E	0.300	-1.554	19.82	-71.60
CJ-1	2r	2.000	8.000	21.33	Yes	30.3-2E	0.568	-2.122	30.90	-95.04
CJ-1	3	2.000	8.000	21.33	Yes	30.3-2E	0.568	-1.623	30.90	-74.45
CJ-2	2r	2.000	10.000	33.33	Yes	30.3-2E	0.491	-1.958	27.70	-88.28
CJ-2	3	2.000	10.000	33.33	Yes	30.3-2E	0.491	-1.519	27.70	-70.14

CJ-3	2r	2.000	9.670	31.17	Yes	30.3-2E	0.503	-1.983	28.18	-89.29
CJ-3	3	2.000	9.670	31.17	Yes	30.3-2E	0.503	-1.534	28.18	-70.79
CJ-4	2r	2.000	6.830	15.55	Yes	30.3-2E	0.623	-2.238	33.17	-99.84
CJ-4	3	2.000	6.830	15.55	Yes	30.3-2E	0.623	-1.697	33.17	-77.50

Area = Span Length x Effective Width
1/3 Rule = Effective width need not be less than 1/3 of the span length
GCp = External Pressure Coefficients taken from Figures 30.3-1 through 30.3-7
p = Wind Pressure: qh*(GCp - GCpi) [Eqn 30.3-1]*
* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] {Includes LF}

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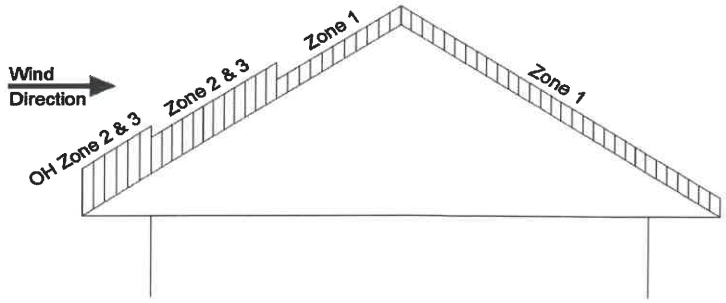
Consulting Engineers
1500 NW 89th Court
Doral, FL 33178

Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-1	
Left OH:	0	ft.
Main Span:	5	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	8	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	
"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf



Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-61	-82	-107

Results:

Left DL Reaction:	125	lbs.	Right DL Reaction:	125	lbs.
Left LL Reaction:	150	lbs.	Right LL Reaction:	150	lbs.
Left Uplift :	-370	lbs.	Right Uplift:	-370	lbs.
Left Gravity:	275	lbs.	Right Gravity:	275	lbs.

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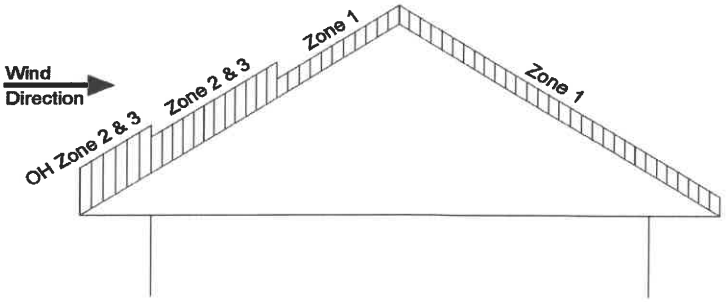
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-2	
Left OH:	0	ft.
Main Span:	14.5	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	70	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	
"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf



Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-51	-63	-77

Results:

Left DL Reaction:	363	lbs.	Right DL Reaction:	363	lbs.
Left LL Reaction:	435	lbs.	Right LL Reaction:	435	lbs.
Left Uplift :	-792	lbs.	Right Uplift:	-792	lbs.
Left Gravity:	798	lbs.	Right Gravity:	798	lbs.

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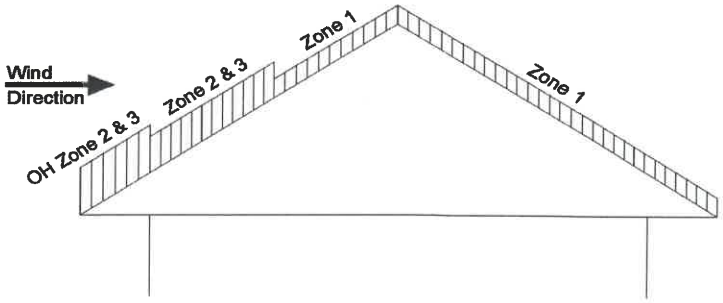
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-3	
Left OH:	0	ft.
Main Span:	15	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	75	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-51	-62	-76

Results:

Left DL Reaction:	375	lbs.	Right DL Reaction:	375	lbs.
Left LL Reaction:	450	lbs.	Right LL Reaction:	450	lbs.
Left Uplift :	-809	lbs.	Right Uplift:	-809	lbs.
Left Gravity:	825	lbs.	Right Gravity:	825	lbs.

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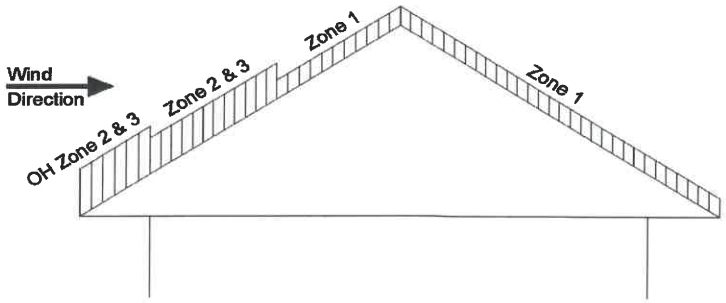
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-4	
Left OH:	0	ft.
Main Span:	8	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	21	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-61	-74	-95

Results:

Left DL Reaction:	200	lbs.	Right DL Reaction:	200	lbs.
Left LL Reaction:	240	lbs.	Right LL Reaction:	240	lbs.
Left Uplift :	-531	lbs.	Right Uplift:	-531	lbs.
Left Gravity:	440	lbs.	Right Gravity:	440	lbs.

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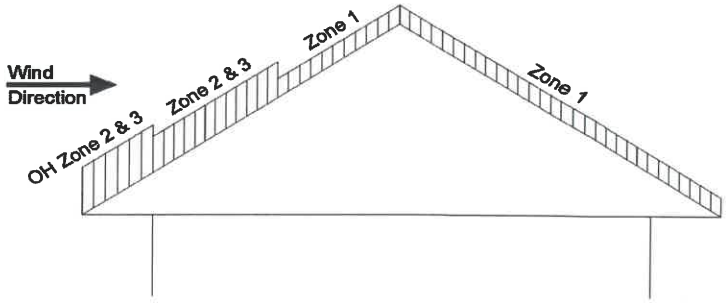
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-5	
Left OH:	0	ft.
Main Span:	22.5	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	169	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-49	-54	-64

Results:

Left DL Reaction:	563	lbs.	Right DL Reaction:	563	lbs.
Left LL Reaction:	675	lbs.	Right LL Reaction:	675	lbs.
Left Uplift :	-1075	lbs.	Right Uplift:	-1075	lbs.
Left Gravity:	1238	lbs.	Right Gravity:	1238	lbs.

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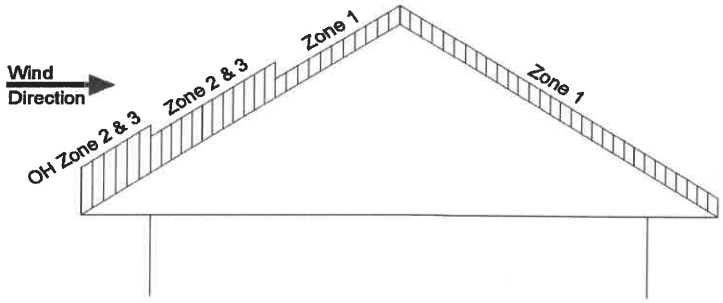
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-6	
Left OH:	0	ft.
Main Span:	7	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	16	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-61	-77	-99

Results:

Left DL Reaction:	175	lbs.	Right DL Reaction:	175	lbs.
Left LL Reaction:	210	lbs.	Right LL Reaction:	210	lbs.
Left Uplift :	-484	lbs.	Right Uplift:	-484	lbs.
Left Gravity:	385	lbs.	Right Gravity:	385	lbs.

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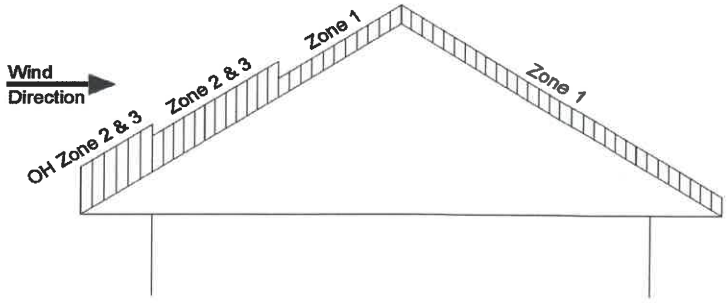
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-7	
Left OH:	0	ft.
Main Span:	25.67	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	220	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-49	-53	-61

Results:

Left DL Reaction:	642	lbs.	Right DL Reaction:	642	lbs.
Left LL Reaction:	770	lbs.	Right LL Reaction:	770	lbs.
Left Uplift :	-1199	lbs.	Right Uplift:	-1199	lbs.
Left Gravity:	1412	lbs.	Right Gravity:	1412	lbs.

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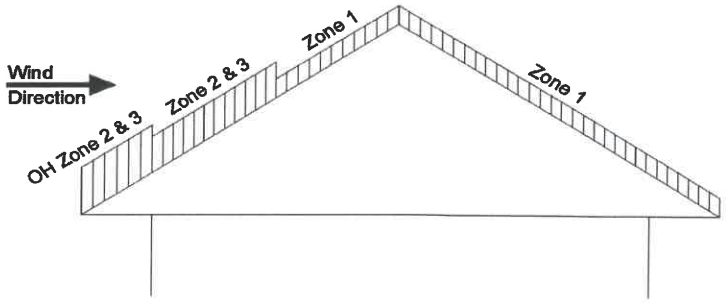
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-8	
Left OH:	0	ft.
Main Span:	5	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	8	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-61	-82	-107

Results:

Left DL Reaction:	125	lbs.	Right DL Reaction:	125	lbs.
Left LL Reaction:	150	lbs.	Right LL Reaction:	150	lbs.
Left Uplift :	-370	lbs.	Right Uplift:	-370	lbs.
Left Gravity:	275	lbs.	Right Gravity:	275	lbs.

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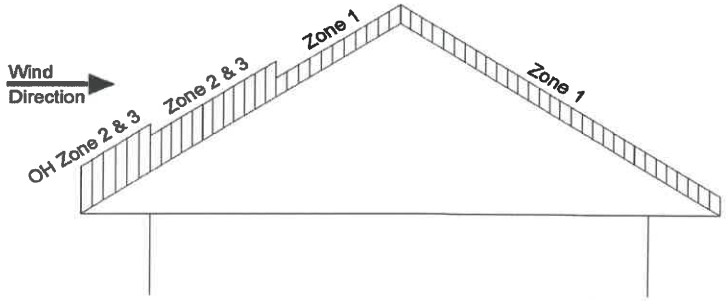
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-9	
Left OH:	0	ft.
Main Span:	42.17	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	593	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-49	-53	-61

Results:

Left DL Reaction:	1054	lbs.	Right DL Reaction:	1054	lbs.
Left LL Reaction:	1265	lbs.	Right LL Reaction:	1265	lbs.
Left Uplift :	-1990	lbs.	Right Uplift:	-1990	lbs.
Left Gravity:	2319	lbs.	Right Gravity:	2319	lbs.

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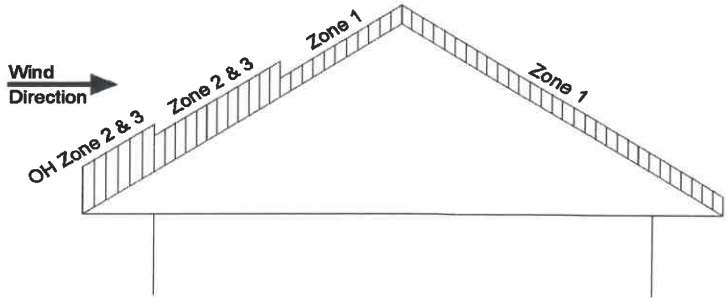
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	T-10	
Left OH:	0	ft.
Main Span:	17.33	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	100	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-49	-60	-72

Results:

Left DL Reaction:	433	lbs.	Right DL Reaction:	433	lbs.
Left LL Reaction:	520	lbs.	Right LL Reaction:	520	lbs.
Left Uplift :	-885	lbs.	Right Uplift:	-885	lbs.
Left Gravity:	953	lbs.	Right Gravity:	953	lbs.

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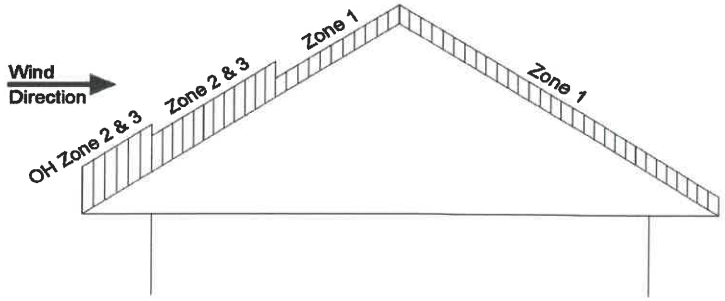
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	GT-1	
Left OH:	0	ft.
Main Span:	14.5	ft.
Right OH:	0	ft.
Truss Spacing:	3.835	ft.
Trib. Area:	70	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	
"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf



Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-51	-63	-77

Results:

Left DL Reaction:	695	lbs.	Right DL Reaction:	695	lbs.
Left LL Reaction:	834	lbs.	Right LL Reaction:	834	lbs.
Left Uplift :	-1518	lbs.	Right Uplift:	-1518	lbs.
Left Gravity:	1529	lbs.	Right Gravity:	1529	lbs.

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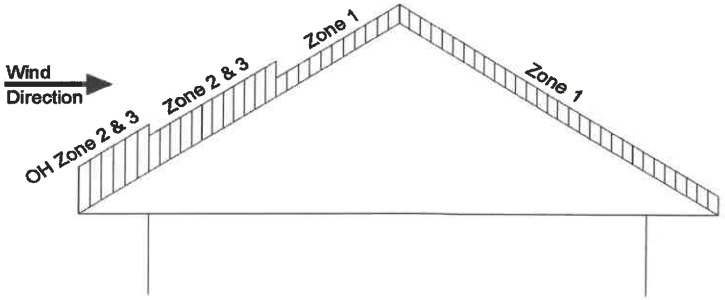
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	GT-2	
Left OH:	0	ft.
Main Span:	15	ft.
Right OH:	0	ft.
Truss Spacing:	3.835	ft.
Trib. Area:	75	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-51	-62	-76

Results:

Left DL Reaction:	719	lbs.	Right DL Reaction:	719	lbs.
Left LL Reaction:	863	lbs.	Right LL Reaction:	863	lbs.
Left Uplift :	-1551	lbs.	Right Uplift:	-1551	lbs.
Left Gravity:	1582	lbs.	Right Gravity:	1582	lbs.

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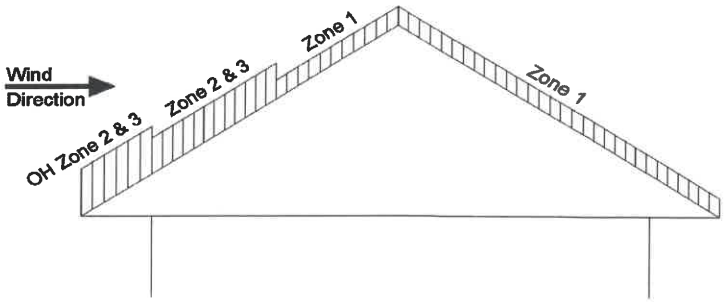
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	GT-3	
Left OH:	0	ft.
Main Span:	15	ft.
Right OH:	0	ft.
Truss Spacing:	5	ft.
Trib. Area:	75	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	
"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf



Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-51	-62	-76

Results:

Left DL Reaction:	938	lbs.	Right DL Reaction:	938	lbs.
Left LL Reaction:	1125	lbs.	Right LL Reaction:	1125	lbs.
Left Uplift :	-2022	lbs.	Right Uplift:	-2022	lbs.
Left Gravity:	2063	lbs.	Right Gravity:	2063	lbs.

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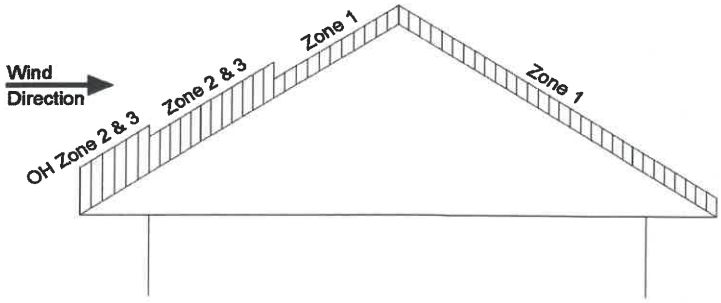
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	GT-4	
Left OH:	0	ft.
Main Span:	25.67	ft.
Right OH:	0	ft.
Truss Spacing:	4.5	ft.
Trib. Area:	220	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-49	-53	-61

Results:

Left DL Reaction:	1444	lbs.	Right DL Reaction:	1444	lbs.
Left LL Reaction:	1733	lbs.	Right LL Reaction:	1733	lbs.
Left Uplift :	-2698	lbs.	Right Uplift:	-2698	lbs.
Left Gravity:	3177	lbs.	Right Gravity:	3177	lbs.

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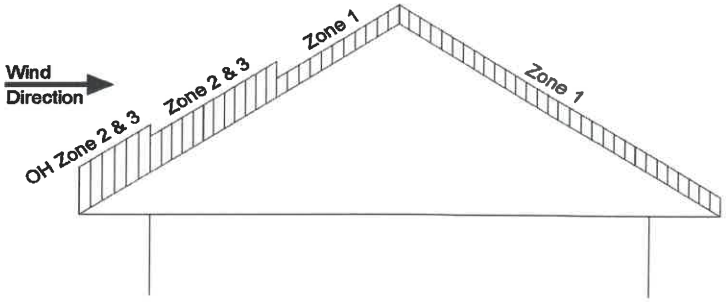
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	GT-5	
Left OH:	0	ft.
Main Span:	42.17	ft.
Right OH:	0	ft.
Truss Spacing:	3.5	ft.
Trib. Area:	593	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-49	-53	-61

Results:

Left DL Reaction:	1845	lbs.	Right DL Reaction:	1845	lbs.
Left LL Reaction:	2214	lbs.	Right LL Reaction:	2214	lbs.
Left Uplift :	-3482	lbs.	Right Uplift:	-3482	lbs.
Left Gravity:	4059	lbs.	Right Gravity:	4059	lbs.

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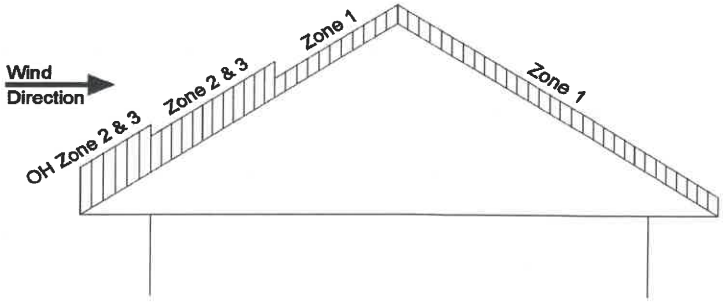
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	GT-6	
Left OH:	0	ft.
Main Span:	5	ft.
Right OH:	0	ft.
Truss Spacing:	14	ft.
Trib. Area:	8	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-61	-82	-107

Results:

Left DL Reaction:	875	lbs.	Right DL Reaction:	875	lbs.
Left LL Reaction:	1050	lbs.	Right LL Reaction:	1050	lbs.
Left Uplift :	-2589	lbs.	Right Uplift:	-2589	lbs.
Left Gravity:	1925	lbs.	Right Gravity:	1925	lbs.

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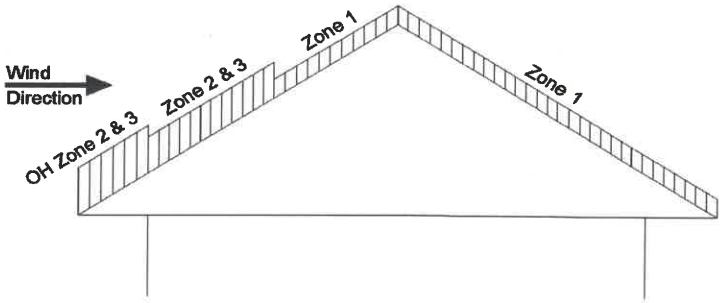
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	GT-7	
Left OH:	0	ft.
Main Span:	17.33	ft.
Right OH:	0	ft.
Truss Spacing:	9.67	ft.
Trib. Area:	100	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-49	-60	-72

Results:

Left DL Reaction:	2095	lbs.	Right DL Reaction:	2095	lbs.
Left LL Reaction:	2514	lbs.	Right LL Reaction:	2514	lbs.
Left Uplift :	-4278	lbs.	Right Uplift:	-4278	lbs.
Left Gravity:	4608	lbs.	Right Gravity:	4608	lbs.

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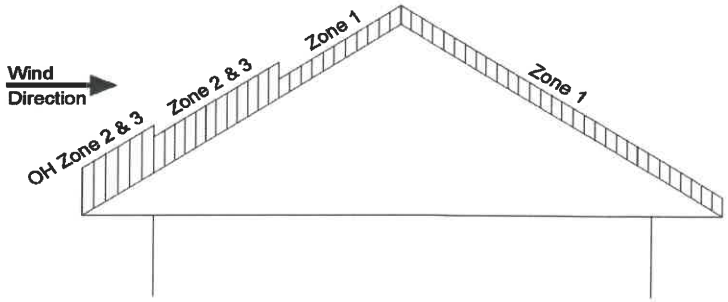
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	CJ-1	
Left OH:	0	ft.
Main Span:	8	ft.
Right OH:	0	ft.
Truss Spacing:	3	ft.
Trib. Area:	21	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)	
2r	3
-95	-74

Results:

Left DL Reaction:	300	lbs.	Right DL Reaction:	300	lbs.
Left LL Reaction:	360	lbs.	Right LL Reaction:	360	lbs.
Left Uplift :	-797	lbs.	Right Uplift:	-797	lbs.
Left Gravity:	660	lbs.	Right Gravity:	660	lbs.

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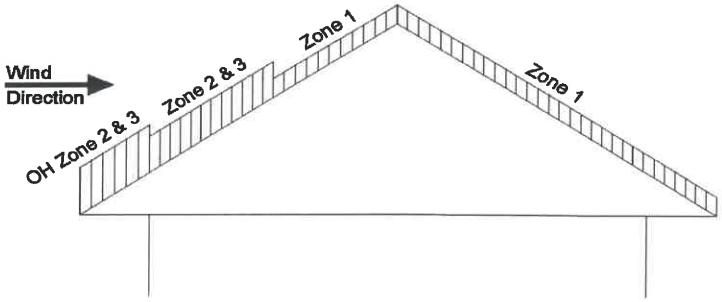
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	CJ-2	
Left OH:	0	ft.
Main Span:	10	ft.
Right OH:	0	ft.
Truss Spacing:	3	ft.
Trib. Area:	33	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)	
2r	3
-88	-70

Results:

Left DL Reaction:	375	lbs.	Right DL Reaction:	375	lbs.
Left LL Reaction:	450	lbs.	Right LL Reaction:	450	lbs.
Left Uplift :	-930	lbs.	Right Uplift:	-930	lbs.
Left Gravity:	825	lbs.	Right Gravity:	825	lbs.

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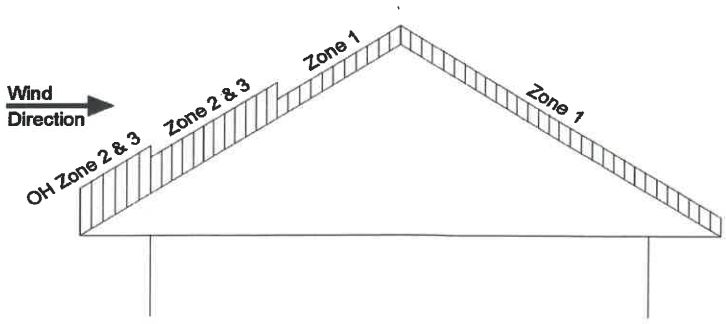
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	CJ-3	
Left OH:	0	ft.
Main Span:	9.67	ft.
Right OH:	0	ft.
Truss Spacing:	3	ft.
Trib. Area:	31	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)	
2r	3
-89	-71

Results:

Left DL Reaction:	363	lbs.	Right DL Reaction:	363	lbs.
Left LL Reaction:	435	lbs.	Right LL Reaction:	435	lbs.
Left Uplift :	-909	lbs.	Right Uplift:	-909	lbs.
Left Gravity:	798	lbs.	Right Gravity:	798	lbs.

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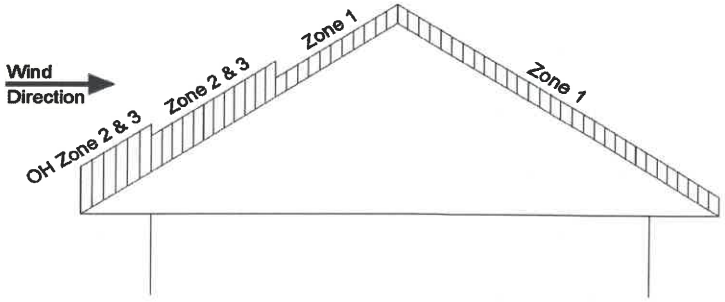
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence**

Truss Mark:	CJ-4	
Left OH:	0	ft.
Main Span:	6.83	ft.
Right OH:	0	ft.
Truss Spacing:	3	ft.
Trib. Area:	16	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)	
2r	3
-100	-78

Results:

Left DL Reaction:	256	lbs.	Right DL Reaction:	256	lbs.
Left LL Reaction:	307	lbs.	Right LL Reaction:	307	lbs.
Left Uplift :	-713	lbs.	Right Uplift:	-713	lbs.
Left Gravity:	563	lbs.	Right Gravity:	563	lbs.

ROCHELL ENGINEERING, INC.

Roof Truss Reactions

(CABANA)

1500 NW 89TH Court Suite 212. Doral, FL 33172 Tel: 305.649.4049

Components and Cladding (C&C) Calculations per Ch 30 Part 1:

h/W	= Ratio of mean roof height to building width	= 0.191
h/L	= Ratio of mean roof height to building length	= 0.097
h	= Mean Roof Height above grade	= 3.000 ft
Kh	= Z < 15 ft [4.572 m]--> (2.01 * (15/zg)^(2/Alpha) {Table 26.10-1}	= 0.849
Kzt	= Topographic Factor is 1 since no Topographic feature specified	= 1.000
Kd	= Wind Directionality Factor per Table 26.6-1	= 0.85
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
LF	= Load Factor based upon ASD Design	= 0.60
qh	= (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF	= 33.94 psf
LHD	= Least Horizontal Dimension: Min(B, L)	= 15.670 ft
a1	= Min(0.1 * LHD, 0.4 * h)	= 1.200 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 3.000 ft
h/B	= Ratio of mean roof height to least hor dim: h / B	= 0.191

Wind Pressures for C&C Ch 30 Pt 1
All wind pressures include a load factor of 0.6

Description	Zone	Width ft	Span ft	Area sq ft	1/3 Rule	Ref Fig	GCp Max	GCp Min	p Max psf	p Min psf
T-11	1	2.000	5.000	10.00	No	30.3-2E	0.700	-1.300	29.87	-50.23
T-11	2e	2.000	5.000	10.00	No	30.3-2E	0.700	-1.800	29.87	-67.20
T-11	2r	2.000	5.000	10.00	No	30.3-2E	0.700	-2.400	29.87	-87.57
T-12	1	2.000	15.670	81.85	Yes	30.3-2E	0.335	-1.037	17.47	-41.32
T-12	2e	2.000	15.670	81.85	Yes	30.3-2E	0.335	-1.309	17.47	-50.53
T-12	2r	2.000	15.670	81.85	Yes	30.3-2E	0.335	-1.628	17.47	-61.37
GT-8	1	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.054	17.99	-41.87
GT-8	2e	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.329	17.99	-51.22
GT-8	2r	2.000	15.000	75.00	Yes	30.3-2E	0.350	-1.660	17.99	-62.46
CJ-1	1	2.000	7.000	16.33	Yes	30.3-2E	0.615	-1.300	26.98	-50.23
CJ-1	2e	2.000	7.000	16.33	Yes	30.3-2E	0.615	-1.685	26.98	-63.31
CJ-1	2r	2.000	7.000	16.33	Yes	30.3-2E	0.615	-2.220	26.98	-81.46

Area = Span Length x Effective Width
1/3 Rule = Effective width need not be less than 1/3 of the span length
GCp = External Pressure Coefficients taken from Figures 30.3-1 through 30.3-7
p = Wind Pressure: qh*(GCp - GCpi) [Eqn 30.3-1]*
* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] {Includes LF}

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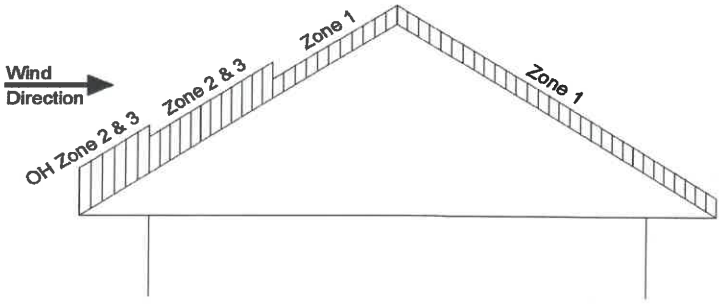
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence CABANA**

Truss Mark:	T-11	
Left OH:	0	ft.
Main Span:	5	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	8	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-50	-67	-88

Results:

Left DL Reaction:	125	lbs.	Right DL Reaction:	125	lbs.
Left LL Reaction:	150	lbs.	Right LL Reaction:	150	lbs.
Left Uplift :	-295	lbs.	Right Uplift:	-295	lbs.
Left Gravity:	275	lbs.	Right Gravity:	275	lbs.

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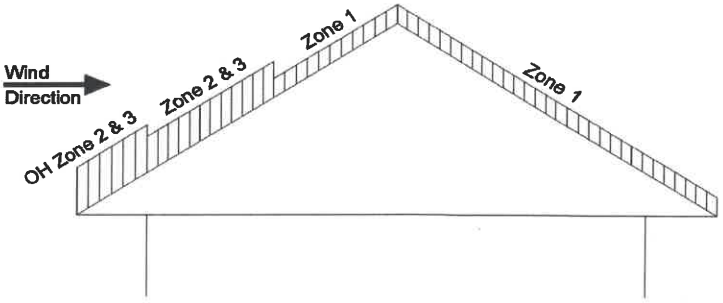
Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence CABANA**

Truss Mark:	T-12	
Left OH:	0	ft.
Main Span:	15.67	ft.
Right OH:	0	ft.
Truss Spacing:	2	ft.
Trib. Area:	82	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-41	-51	-61

Results:

Left DL Reaction:	392	lbs.	Right DL Reaction:	392	lbs.
Left LL Reaction:	470	lbs.	Right LL Reaction:	470	lbs.
Left Uplift :	-655	lbs.	Right Uplift:	-655	lbs.
Left Gravity:	862	lbs.	Right Gravity:	862	lbs.

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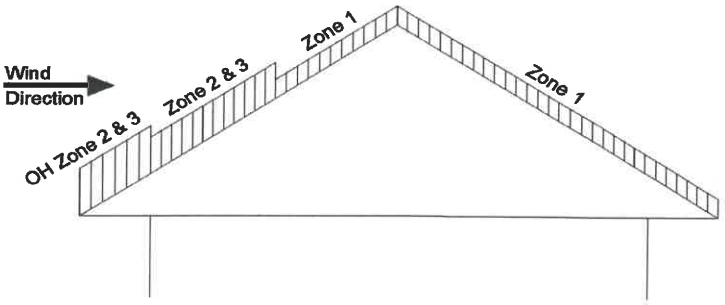
Doral, FL 33178

Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence CABANA**

Truss Mark:	CJ-1	
Left OH:	0	ft.
Main Span:	7	ft.
Right OH:	0	ft.
Truss Spacing:	3	ft.
Trib. Area:	16	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	



"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf

Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)	
2r	3
-81	-63

Results:

Left DL Reaction:	263	lbs.	Right DL Reaction:	263	lbs.
Left LL Reaction:	315	lbs.	Right LL Reaction:	315	lbs.
Left Uplift :	-577	lbs.	Right Uplift:	-577	lbs.
Left Gravity:	578	lbs.	Right Gravity:	578	lbs.

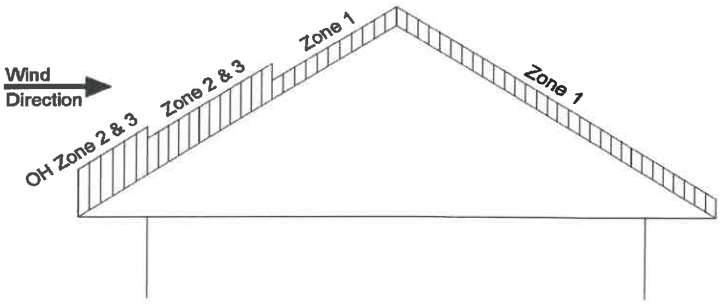
ROCHELL ENGINEERING, INC.

Rochell Engineering, Inc.
Consulting Engineers
1500 NW 89th Court
Doral, FL 33178

Roof Truss Component & Cladding Reactions per ASCE 7-16

Project: **De La concepcion Residence CABANA**

Truss Mark:	GT-8	
Left OH:	0	ft.
Main Span:	15	ft.
Right OH:	0	ft.
Truss Spacing:	3.5	ft.
Trib. Area:	75	s.f.
Roof Slope:	3	0f 12
Flat Area Mult.:	1.031	
"a" width :	9	ft.
Uniform DL:	25	psf
Uniform LL:	30	psf



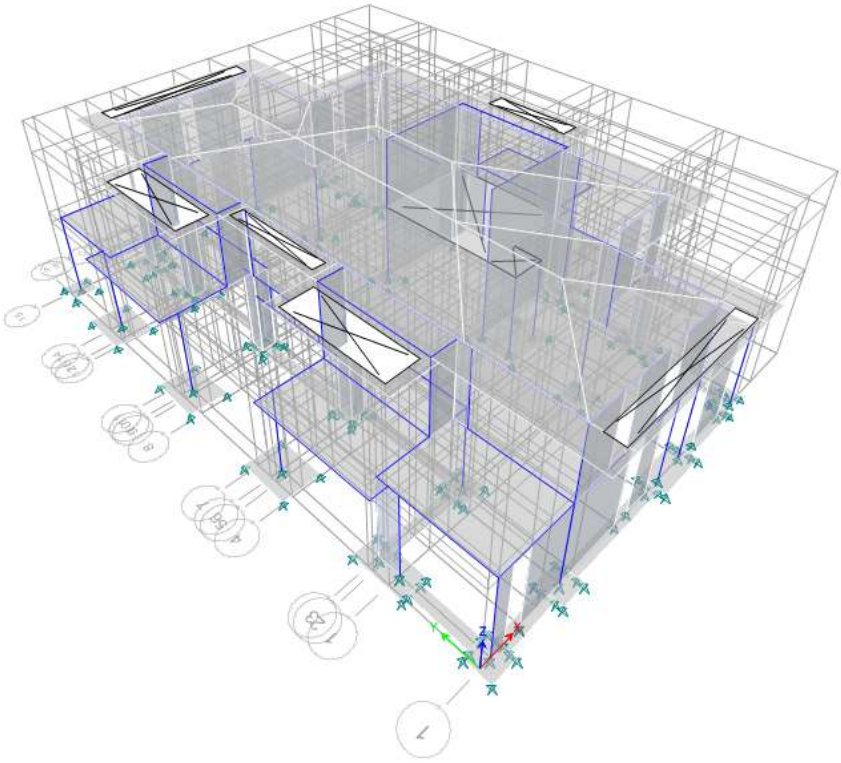
Notes:
1. Zone 2 & 3 pressures are applied to left side only as per figure above.
2. Calculated pressures for roof slopes of 10 to 30 degrees, Qz = Qh

Zone Uplift (psf)		
1	2e	2r
-42	-51	-62

Results:

Left DL Reaction:	656	lbs.	Right DL Reaction:	656	lbs.
Left LL Reaction:	788	lbs.	Right LL Reaction:	788	lbs.
Left Uplift :	-1115	lbs.	Right Uplift:	-1115	lbs.
Left Gravity:	1444	lbs.	Right Gravity:	1444	lbs.

ETABS®



De La concepcion Residence

De La concepcion Residence

Model File: De La concepcion Residence, Revision 0

12/8/2022

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1 Structure Data

This chapter provides model geometry information, including items such as story levels, point coordinates, and element connectivity.

1.1 Story Data

Table 1.1 - Story Definitions

Tower	Name	Height ft	Master Story	Similar To	Splice Story	Color
T1	Upper-Roof	5.1667	Yes	None	No	Gray8Dark
T1	Roof	12	Yes	None	No	Gray8Dark
T1	Story1	14	Yes	None	No	Gray8Dark

1.2 Grid Data

Table 1.2 - Grid Definitions - General

Tower	Name	Type	Ux ft	Uy ft	Rz deg	Story Range	Bubble Size in	Color
T1	G1	Cartesian	0	0	0	Default	60	Gray6

Table 1.3 - Grid Definitions - Grid Lines

Name	Grid Line Type	ID	Ordinate ft	Bubble Location	Visible
G1	X (Cartesian)	A	0	End	Yes
G1	X (Cartesian)	B	1.6667	End	Yes
G1	X (Cartesian)	C	6.5833	End	Yes
G1	X (Cartesian)	D	9.6667	End	Yes
G1	X (Cartesian)	E	13.6667	End	Yes
G1	X (Cartesian)	F	16	End	Yes
G1	X (Cartesian)	G	24.5833	End	Yes
G1	X (Cartesian)	H	31.3333	End	Yes
G1	X (Cartesian)	I	39.3333	End	Yes
G1	X (Cartesian)	J	53.1667	End	Yes
G1	X (Cartesian)	K	55.1667	End	Yes
G1	X (Cartesian)	L	58.8333	End	Yes
G1	X (Cartesian)	M	67.3333	End	Yes
G1	Y (Cartesian)	1	0	Start	Yes
G1	Y (Cartesian)	1	13.4063	Start	Yes
G1	Y (Cartesian)	2	15.8229	Start	Yes
G1	Y (Cartesian)	3	16.7396	Start	Yes
G1	Y (Cartesian)	4	30.4896	Start	Yes
G1	Y (Cartesian)	5	33.4896	Start	Yes
G1	Y (Cartesian)	6	34.7396	Start	Yes
G1	Y (Cartesian)	7	37.4896	Start	Yes
G1	Y (Cartesian)	8	50.1563	Start	Yes
G1	Y (Cartesian)	9	54.1563	Start	Yes
G1	Y (Cartesian)	10	55.0729	Start	Yes
G1	Y (Cartesian)	11	57.1563	Start	Yes

Table 1.3 - Grid Definitions - Grid Lines (continued)

Name	Grid Line Type	ID	Ordinate ft	Bubble Location	Visible
G1	Y (Cartesian)	12	70.4896	Start	Yes
G1	Y (Cartesian)	16	71.8229	Start	Yes
G1	Y (Cartesian)	14	74.7396	Start	Yes
G1	Y (Cartesian)	15	87.6563	Start	Yes

1.3 Point Coordinates

Table 1.4 - Point Bays

Label	Is Auto Point	X ft	Y ft	DZBelow ft
1	No	9.6668	-5.3333	0
2	No	13.6667	-5.3333	0
3	No	39.3333	-5.3333	0
4	No	43.6667	-5.3333	0
5	No	13.6667	-4.3333	0
6	No	39.3333	-4.3333	0
7	No	-0.3333	-2	0
8	No	3.6667	-2	0
9	No	11.6667	-2	0
10	No	15.6667	-2	0
11	No	32.8958	-2	0
12	No	40.8958	-2	0
13	No	13.6667	-1.6633	0
14	No	39.3333	-1.6633	0
15	No	3.6667	-1	0
16	No	11.6667	-1	0
17	No	15.6667	-1	0
18	No	32.8958	-1	0
19	No	40.8958	-1	0
20	No	51.1667	-1	0
21	No	51.1667	-0.4792	0
22	No	55.1667	-0.4792	0
23	No	1.6667	0	0
24	No	3.9167	0	0
25	No	6.5833	0	0
26	No	13.6667	0	0
27	No	20.0833	0	0
28	No	23.0833	0	0
29	No	24.5833	0	0
30	No	27.25	0	0
31	No	29.25	0	0
32	No	31.3333	0	0
33	No	32.25	0	0
34	No	34.4583	0	0
35	No	39.3333	0	0
36	No	42.8333	0	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
37	No	43.6667	0	0
38	No	49.5	0	0
39	No	53.1667	0	0
40	No	3.6667	1	0
41	No	11.6667	1	0
42	No	15.6667	1	0
43	No	32.8958	1	0
44	No	40.8958	1	0
45	No	51.1667	1	0
46	No	54.1667	1	0
47	No	-0.3333	2	0
48	No	0.6667	2	0
49	No	2.6667	2	0
50	No	3.6667	2	0
51	No	11.6667	2	0
52	No	15.6667	2	0
53	No	32.8958	2	0
54	No	40.8958	2	0
55	No	51.1667	2	0
56	No	52.1667	2	0
57	No	54.1667	2	0
58	No	55.1667	2	0
59	No	-0.3333	11.0729	0
60	No	0.6667	11.0729	0
61	No	2.6667	11.0729	0
62	No	3.6667	11.0729	0
63	No	39.3333	11.4896	0
64	No	43.6667	11.4896	0
65	No	55.1667	11.4896	0
66	No	59.5	11.4896	0
67	No	52.1667	12.8229	0
68	No	54.1667	12.8229	0
69	No	56.1667	12.8229	0
70	No	39.3333	13.3333	0
71	No	1.6667	13.4063	0
72	No	37.3333	13.8229	0
73	No	41.3333	13.8229	0
74	No	53.1667	13.8229	0
75	No	13.6667	14.5729	0
76	No	14	14.7396	0
77	No	18	14.7396	0
78	No	-1	15.0729	0
79	No	1.6667	15.0729	0
80	No	2.6664	15.5734	0
81	No	9.6664	15.5733	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
82	No	3.6667	15.7396	0
83	No	14	15.7396	0
84	No	13.6667	15.8229	0
85	No	39.3333	15.8229	0
86	No	40.9167	15.8229	0
87	No	43.4167	15.8229	0
88	No	48.9167	15.8229	0
89	No	51.4167	15.8229	0
90	No	53.1667	15.8229	0
91	No	55.1667	15.8229	0
92	No	1.6667	16.7396	0
93	No	9.6668	16.7396	0
94	No	13.6667	16.7396	0
95	No	16	16.7396	0
96	No	3.6665	17.2434	0
97	No	8.6664	17.2433	0
98	No	3.6667	17.7396	0
99	No	14	17.7396	0
100	No	37.3333	17.8229	0
101	No	41.3333	17.8229	0
102	No	55.1667	17.8229	0
103	No	14	18.7396	0
104	No	14.8333	18.7396	0
105	No	16.8333	18.7396	0
106	No	18	18.7396	0
107	No	52.1667	18.8229	0
108	No	54.1667	18.8229	0
109	No	56.1667	18.8229	0
110	No	-0.3333	19.0729	0
111	No	3.6667	19.0729	0
112	No	37.6667	26.3646	0
113	No	46.6667	26.3646	0
114	No	39.3333	28.2396	0
115	No	45	28.2396	0
116	No	54	28.8229	0
117	No	54.1667	28.8229	0
118	No	56.1667	28.8229	0
119	No	60	28.8229	0
120	No	55.1667	30.4896	0
121	No	-1.3333	30.7396	0
122	No	4.6667	30.7396	0
123	No	56.3333	31.823	0
124	No	57.0833	31.823	0
125	No	58.8333	31.823	0
126	No	46.6667	32.4896	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
127	No	54	32.4896	0
128	No	57.0833	32.823	0
129	No	58.8333	32.823	0
130	No	39.3333	33.4896	0
131	No	45	33.4896	0
132	No	55.1667	33.4896	0
133	No	56.3333	33.4896	0
134	No	58.8333	33.4896	0
135	No	59.5	33.4896	0
136	No	63.5	33.4896	0
137	No	12.8333	33.9062	0
138	No	14.8333	33.9062	0
139	No	16.8333	33.9062	0
140	No	3.6666	34.2367	0
141	No	8.6666	34.2366	0
142	No	46.6667	34.4896	0
143	No	54	34.4896	0
144	No	-1	34.7396	0
145	No	1.6667	34.7396	0
146	No	9.6667	34.7396	0
147	No	13.6667	34.7396	0
148	No	16	34.7396	0
149	No	54	34.8229	0
150	No	57.8333	34.8229	0
151	No	59.8333	34.8229	0
152	No	60	34.8229	0
153	No	56.3333	34.9896	0
154	No	58.8333	34.9896	0
155	No	67.3333	34.9896	0
156	No	13.6667	35.3229	0
157	No	37.6667	35.3646	0
158	No	46.6667	35.3646	0
159	No	2.6667	35.9066	0
160	No	9.6667	35.9066	0
161	No	13.6667	35.9066	0
162	No	59.5	36.4896	0
163	No	62.5	36.4896	0
164	No	34.4167	36.5729	0
165	No	10.6667	36.9066	0
166	No	12.6667	36.9066	0
167	No	13.6667	37.0729	0
168	No	16	37.0729	0
169	No	56.3333	37.4896	0
170	No	58.8333	37.4896	0
171	No	12.8333	37.9062	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
172	No	13.3333	37.9062	0
173	No	15.3333	37.9062	0
174	No	16.8333	37.9062	0
175	No	-1.3333	38.7396	0
176	No	4.6667	38.7396	0
177	No	13.6667	40.7813	0
190	Yes	33.0832	43.8281	0
203	Yes	33.1667	45.1615	0
204	No	13.6667	45.7813	0
205	No	56.3333	50.1563	0
206	No	58.8333	50.1563	0
207	No	13.6667	50.7813	0
208	No	-1.3333	51.0729	0
209	No	4.6667	51.0729	0
210	No	34.4167	51.0729	0
211	No	59.5	51.1563	0
212	No	62.5	51.1563	0
213	No	37.3333	52.1563	0
214	No	41.3333	52.1563	0
215	No	56.3333	52.6563	0
216	No	58.8333	52.6563	0
217	No	67.3333	52.6563	0
218	No	54	52.8229	0
219	No	57.8333	52.8229	0
220	No	59.8333	52.8229	0
221	No	60	52.8229	0
222	No	41.3333	53.1563	0
223	No	54	53.1563	0
224	No	10.6667	53.4896	0
225	No	12.6667	53.4896	0
226	No	12.8333	53.6563	0
227	No	13.3333	53.6563	0
228	No	15.3333	53.6563	0
229	No	16.8333	53.6563	0
230	No	2.6667	53.7393	0
231	No	9.6667	53.7393	0
232	No	13.6667	53.7393	0
233	No	39.3333	54.1563	0
234	No	55.1667	54.1563	0
235	No	56.3333	54.1563	0
236	No	58.8333	54.1563	0
237	No	59.5	54.1563	0
238	No	63.5	54.1563	0
239	No	13.6667	54.4896	0
240	No	16	54.4896	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
241	No	56.3333	54.4897	0
242	No	57.0833	54.8229	0
243	No	58.8333	54.8229	0
244	No	-1	55.0729	0
245	No	1.6667	55.0729	0
246	No	9.6667	55.0729	0
247	No	13.6667	55.0729	0
248	No	41.3333	55.1563	0
249	No	54	55.1563	0
250	No	3.6667	55.4093	0
251	No	8.6667	55.4093	0
252	No	56.3333	55.8229	0
253	No	57.0833	55.8229	0
254	No	58.8333	55.8229	0
255	No	37.3333	56.1563	0
256	No	41.3333	56.1563	0
257	No	13.6667	56.8229	0
258	No	16	56.8229	0
259	No	55.1667	57.1563	0
260	No	12.8333	57.6563	0
261	No	14.8333	57.6563	0
262	No	16.8333	57.6563	0
263	No	54	58.8229	0
264	No	54.1667	58.8229	0
265	No	56.1667	58.8229	0
266	No	60	58.8229	0
267	No	-1.3333	59.0729	0
268	No	4.6667	59.0729	0
269	No	52.1667	69.3646	0
270	No	54.1667	69.3646	0
271	No	56.1667	69.3646	0
272	No	55.1667	69.6563	0
273	No	37.3333	69.8229	0
274	No	41.3333	69.8229	0
275	No	55.1667	70.4896	0
276	No	-1.3333	70.7396	0
277	No	4.6667	70.7396	0
278	No	12.3333	70.7813	0
279	No	14.8333	70.7813	0
280	No	16.8333	70.7813	0
281	No	17.3333	70.7813	0
282	No	13.6667	71.8229	0
283	No	39.3333	71.8229	0
284	No	43.6667	71.8229	0
285	No	44	71.8229	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
286	No	46.25	71.8229	0
287	No	51	71.8229	0
288	No	51.8333	71.8229	0
289	No	53.1667	71.8229	0
290	No	54.3333	71.8229	0
291	No	55.1667	71.8229	0
292	No	55.8333	71.8229	0
293	No	59.5	71.8229	0
294	No	3.6667	72.4026	0
295	No	8.6667	72.4026	0
296	No	1.6667	72.8229	0
297	No	9.6667	72.8229	0
298	No	13.6667	72.8229	0
299	No	16	72.8229	0
300	No	37.3333	73.8229	0
301	No	41.3333	73.8229	0
302	No	2.6667	74.0726	0
303	No	9.6667	74.0726	0
304	No	13.6667	74.0729	0
305	No	53.1667	74.2396	0
306	No	39.3333	74.3229	0
307	No	-1	74.7396	0
308	No	1.6667	74.7396	0
309	No	13.6667	74.7396	0
310	No	13.6667	75.1562	0
311	No	16	75.1562	0
312	No	52.1667	75.3646	0
313	No	54.1667	75.3646	0
314	No	56.1667	75.3646	0
315	No	43.6667	76.1563	0
316	No	59.5	76.1563	0
317	No	51.1667	76.2813	0
318	No	52.1667	76.2813	0
319	No	54.1667	76.2813	0
320	No	55.1667	76.2813	0
321	No	12.3333	76.7813	0
322	No	12.6667	76.7813	0
323	No	14.6667	76.7813	0
324	No	17.3333	76.7813	0
325	No	53.1667	77.2396	0
326	No	54.1667	77.3646	0
327	No	-1.3333	78.7396	0
328	No	4.6667	78.7396	0
329	No	53.1667	79.3229	0
330	No	51.1667	80.2813	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
331	No	52.1667	80.2813	0
332	No	54.1667	80.2813	0
333	No	55.1667	80.2813	0
334	No	11.1667	83.4896	0
335	No	12.6667	83.4896	0
336	No	14.6667	83.4896	0
337	No	16.1667	83.4896	0
338	No	13.6667	84.3229	0
339	No	13.6667	85.4896	0
340	No	39.3333	85.4896	0
341	No	-0.3333	85.6563	0
342	No	3.6667	85.6563	0
343	No	35.3333	85.6563	0
344	No	39.3333	85.6563	0
345	No	51.1667	85.6563	0
346	No	52.1667	85.6563	0
347	No	54.1667	85.6563	0
348	No	55.1667	85.6563	0
349	No	16.1667	86.6563	0
350	No	35.3333	86.6563	0
351	No	39.3333	86.6563	0
352	No	51.1667	86.6563	0
353	No	1.6667	87.6563	0
354	No	13.6667	87.6563	0
355	No	14.5	87.6563	0
356	No	17	87.6563	0
357	No	17.6667	87.6563	0
358	No	20	87.6563	0
359	No	24.6667	87.6563	0
360	No	25.6667	87.6563	0
361	No	27.1667	87.6563	0
362	No	28.6667	87.6563	0
363	No	34.3333	87.6563	0
364	No	36	87.6563	0
365	No	37.3333	87.6563	0
366	No	38.5	87.6563	0
367	No	39.3333	87.6563	0
368	No	43.6667	87.6563	0
369	No	53.1667	87.6563	0
370	No	11.1667	88.4896	0
371	No	16.1667	88.4896	0
372	No	16.1667	88.6563	0
373	No	35.3333	88.6563	0
374	No	38.3333	88.6563	0
375	No	39.3333	88.6563	0

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
376	No	51.1667	88.6563	0
377	No	13.6667	89.3263	0
378	No	39.3333	89.3263	0
379	No	-0.3333	89.6563	0
380	No	3.6667	89.6563	0
381	No	35.3333	89.6563	0
382	No	39.3333	89.6563	0
383	No	51.1667	89.6563	0
384	No	55.1667	89.6563	0
385	No	37.3333	90.3229	0
386	No	55.8333	90.3229	0
387	No	13.6667	91.9963	0
388	No	39.3333	91.9963	0
389	No	9.6666	92.9896	0
390	No	13.6667	92.9896	0
391	No	43.6667	92.9896	0
392	Yes	30.7463	45.5709	0
393	Yes	28.9451	44.968	0
394	Yes	33.0832	43.8281	0
395	Yes	33.1667	45.1615	0
396	Yes	33.0832	43.8281	0
397	Yes	33.1667	45.1615	0
398	Yes	33.0832	43.8281	0
399	Yes	33.1667	45.1615	0
400	Yes	33.0832	43.8281	0
401	Yes	33.1667	45.1615	0
402	Yes	33.0832	43.8281	0
403	Yes	33.1667	45.1615	0
404	Yes	33.0832	43.8281	0
405	Yes	33.1667	45.1615	0
406	Yes	33.0832	43.8281	0
407	Yes	33.1667	45.1615	0
408	Yes	33.0832	43.8281	0
409	Yes	33.1667	45.1615	0
410	Yes	33.0832	43.8281	0
411	Yes	33.1667	45.1615	0
412	Yes	33.0832	43.8281	0
413	Yes	33.1667	45.1615	0
414	Yes	33.0832	43.8281	0
415	Yes	33.1667	45.1615	0
58-1	No	46.25	6.9167	10.4167
69-1	No	26.5	12.8333	1.9712
87-1	No	46.25	15.8229	10.4167
115-1	No	26.5	28.6563	1.9712
167-1	No	13.6667	37.0729	3.6667

Table 1.4 - Point Bays (continued)

Label	Is Auto Point	X ft	Y ft	DZBelow ft
177-1	No	13.6667	40.7813	3.6667
204-1	No	13.6667	45.7813	3.6667
207-1	No	13.6667	50.7813	3.6667
239-1	No	13.6667	54.4896	3.6667
266-1	No	26.5	58.9896	1.9712
285-1	No	44	71.8229	10.4167
286-1	No	46.25	71.8229	10.4167
309-1	No	26.5	74.8229	1.9712
333-1	No	46.25	80.7396	10.4167

1.4 Line Connectivity

Table 1.5 - Column Bays

Label	PointBayI	PointBayJ	IEndStory
C1	23	23	Below
C2	26	26	Below
C3	34	34	Below
C4	35	35	Below
C5	39	39	Below
C6	70	70	Below
C7	71	71	Below
C8	75	75	Below
C9	85	85	Below
C10	92	92	Below
C11	93	93	Below
C12	95	95	Below
C13	102	102	Below
C14	114	114	Below
C15	115	115	Below
C16	120	120	Below
C17	130	130	Below
C18	145	145	Below
C19	146	146	Below
C20	156	156	Below
C21	169	169	Below
C22	170	170	Below
C23	177-1	177	Same
C24	204-1	204	Same
C25	205	205	Below
C26	206	206	Below
C27	207-1	207	Same
C28	233	233	Below
C29	239	239	Below
C30	245	245	Below
C31	246	246	Below
C32	259	259	Below

Table 1.5 - Column Bays (continued)

Label	PointBayI	PointBayJ	IEndStory
C33	275	275	Below
C34	283	283	Below
C35	297	297	Below
C36	304	304	Below
C37	306	306	Below
C38	308	308	Below
C39	309	309	Below
C40	353	353	Below
C41	365	365	Below
C42	369	369	Below

Table 1.6 - Beam Bays

Label	PointBayI	PointBayJ
B1	23	26
B2	26	35
B3	35	39
B4	35	85
B5	39	90
B6	23	92
B7	26	94
B8	78	79
B9	85	91
B10	92	94
B11	93	94
B12	94	95
B13	91	120
B14	91	132
B15	78	144
B16	93	146
B17	94	156
B18	95	168
B19	114	115
B20	114	130
B21	115	131
B22	120	132
B23	130	132
B24	130	134
B25	132	133
B26	144	145
B27	145	148
B28	146	147
B29	153	155
B30	130	233
B31	132	234
B32	133	235
B33	125	254

Table 1.6 - Beam Bays (continued)

Label	PointBayI	PointBayJ
B34	155	217
B35	156	239
B36	167-1	239-1
B37	147	257
B38	215	217
B39	233	234
B40	234	235
B41	234	236
B42	239	247
B43	244	245
B44	245	247
B45	246	247
B46	234	259
B47	234	291
B48	246	297
B49	247	298
B50	259	291
B51	240	311
B52	244	307
B53	283	291
B54	296	297
B55	297	298
B56	297	299
B57	298	309
B58	307	308
B59	283	367
B60	289	369
B61	296	353
B62	298	354
B63	309	354
B64	353	354
B65	354	367
B66	367	369

1.5 Area Connectivity

Table 1.7 - Floor Bays

Label	NumPoints	PointNumber	PointBay
F1	4	1	2
F1		2	3
F1		3	35
F1		4	26
F2	4	1	3
F2		2	4
F2		3	37
F2		4	35

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F3	4	1	7
F3		2	8
F3		3	50
F3		4	47
F4	4	1	15
F4		2	16
F4		3	41
F4		4	40
F5	4	1	9
F5		2	10
F5		3	52
F5		4	51
F6	4	1	17
F6		2	18
F6		3	43
F6		4	42
F7	4	1	11
F7		2	12
F7		3	54
F7		4	53
F8	4	1	19
F8		2	20
F8		3	45
F8		4	44
F9	4	1	21
F9		2	22
F9		3	58
F9		4	55
F10	3	1	39
F10		2	58-1
F10		3	35
F11	3	1	26
F11		2	35
F11		3	69-1
F12	4	1	1
F12		2	2
F12		3	94
F12		4	93
F13	4	1	35
F13		2	37
F13		3	64
F13		4	63
F14	4	1	48
F14		2	49
F14		3	61
F14		4	60

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F15	4	1	56
F15		2	57
F15		3	68
F15		4	67
F16	4	1	23
F16		2	26
F16		3	94
F16		4	92
F17	4	1	85
F17		2	35
F17		3	58-1
F17		4	87-1
F18	4	1	39
F18		2	90
F18		3	87-1
F18		4	58-1
F19	4	1	63
F19		2	65
F19		3	91
F19		4	85
F20	4	1	84
F20		2	26
F20		3	69-1
F20		4	115-1
F21	4	1	35
F21		2	85
F21		3	115-1
F21		4	69-1
F22	4	1	59
F22		2	62
F22		3	111
F22		4	110
F23	4	1	72
F23		2	73
F23		3	101
F23		4	100
F24	4	1	67
F24		2	69
F24		3	109
F24		4	107
F25	4	1	82
F25		2	83
F25		3	99
F25		4	98
F26	4	1	76
F26		2	77

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F26		3	106
F26		4	103
F27	6	1	93
F27		2	92
F27		3	79
F27		4	78
F27		5	144
F27		6	146
F28	4	1	108
F28		2	109
F28		3	118
F28		4	117
F29	4	1	85
F29		2	91
F29		3	164
F29		4	115-1
F30	4	1	160
F30		2	159
F30		3	80
F30		4	81
F31	4	1	93
F31		2	94
F31		3	161
F31		4	160
F32	4	1	104
F32		2	105
F32		3	139
F32		4	138
F33	4	1	112
F33		2	113
F33		3	158
F33		4	157
F34	4	1	116
F34		2	119
F34		3	152
F34		4	149
F35	4	1	126
F35		2	127
F35		3	143
F35		4	142
F36	4	1	123
F36		2	125
F36		3	170
F36		4	169
F37	4	1	121
F37		2	122

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F37		3	176
F37		4	175
F38	4	1	137
F38		2	139
F38		3	174
F38		4	171
F39	4	1	65
F39		2	66
F39		3	293
F39		4	291
F40	4	1	282
F40		2	84
F40		3	115-1
F40		4	266-1
F41	4	1	266-1
F41		2	115-1
F41		3	164
F41		4	210
F42	4	1	91
F42		2	164
F42		3	210
F42		4	291
F43	4	1	150
F43		2	151
F43		3	220
F43		4	219
F44	8	1	205
F44		2	169
F44		3	170
F44		4	154
F44		5	155
F44		6	217
F44		7	216
F44		8	206
F45	4	1	135
F45		2	136
F45		3	238
F45		4	237
F46	20	1	26
F46		2	35
F46		3	85
F46		4	91
F46		5	132
F46		6	130
F46		7	233
F46		8	234

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F46		9	291
F46		10	283
F46		11	367
F46		12	354
F46		13	298
F46		14	297
F46		15	246
F46		16	247
F46		17	147
F46		18	146
F46		19	93
F46		20	94
F47	4	1	160
F47		2	161
F47		3	232
F47		4	231
F48	4	1	172
F48		2	173
F48		3	228
F48		4	227
F49	4	1	205
F49		2	206
F49		3	254
F49		4	252
F50	4	1	213
F50		2	214
F50		3	256
F50		4	255
F51	4	1	222
F51		2	223
F51		3	249
F51		4	248
F52	4	1	208
F52		2	209
F52		3	268
F52		4	267
F53	4	1	226
F53		2	229
F53		3	262
F53		4	260
F54	4	1	218
F54		2	221
F54		3	266
F54		4	263
F55	4	1	291
F55		2	283

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F55		3	266-1
F55		4	210
F56	4	1	230
F56		2	231
F56		3	303
F56		4	302
F57	4	1	231
F57		2	232
F57		3	304
F57		4	303
F58	4	1	264
F58		2	265
F58		3	271
F58		4	270
F59	4	1	261
F59		2	262
F59		3	280
F59		4	279
F60	6	1	307
F60		2	244
F60		3	246
F60		4	297
F60		5	296
F60		6	308
F61	4	1	273
F61		2	274
F61		3	301
F61		4	300
F62	4	1	269
F62		2	271
F62		3	314
F62		4	312
F63	4	1	354
F63		2	282
F63		3	266-1
F63		4	309-1
F64	4	1	367
F64		2	309-1
F64		3	266-1
F64		4	283
F65	4	1	278
F65		2	281
F65		3	324
F65		4	321
F66	4	1	284
F66		2	293

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F66		3	316
F66		4	315
F67	4	1	276
F67		2	277
F67		3	328
F67		4	327
F68	4	1	312
F68		2	313
F68		3	319
F68		4	318
F69	4	1	367
F69		2	283
F69		3	286-1
F69		4	333-1
F70	4	1	333-1
F70		2	286-1
F70		3	289
F70		4	369
F71	4	1	317
F71		2	320
F71		3	333
F71		4	330
F72	4	1	283
F72		2	284
F72		3	368
F72		4	367
F73	4	1	322
F73		2	323
F73		3	336
F73		4	335
F74	4	1	296
F74		2	298
F74		3	354
F74		4	353
F75	4	1	331
F75		2	332
F75		3	347
F75		4	346
F76	6	1	365
F76		2	385
F76		3	386
F76		4	292
F76		5	289
F76		6	369
F77	3	1	354
F77		2	309-1

Table 1.7 - Floor Bays (continued)

Label	NumPoints	PointNumber	PointBay
F77		3	367
F78	4	1	303
F78		2	304
F78		3	390
F78		4	389
F79	3	1	333-1
F79		2	369
F79		3	367
F80	4	1	334
F80		2	337
F80		3	371
F80		4	370
F81	4	1	341
F81		2	342
F81		3	380
F81		4	379
F82	4	1	349
F82		2	350
F82		3	373
F82		4	372
F83	4	1	343
F83		2	344
F83		3	382
F83		4	381
F84	4	1	351
F84		2	352
F84		3	376
F84		4	375
F85	4	1	345
F85		2	348
F85		3	384
F85		4	383
F86	4	1	354
F86		2	368
F86		3	391
F86		4	390

Table 1.8 - Wall Bays

Label	NumPoints	PointNumber	PointBay	PointStory
W1	4	1	23	Below
W1		2	24	Below
W1		3	24	Same
W1		4	23	Same
W2	4	1	25	Below
W2		2	29	Below
W2		3	29	Same

Table 1.8 - Wall Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
W2		4	25	Same
W3	4	1	26	Below
W3		2	27	Below
W3		3	27	Same
W3		4	26	Same
W4	4	1	28	Below
W4		2	31	Below
W4		3	31	Same
W4		4	28	Same
W5	4	1	30	Below
W5		2	32	Below
W5		3	32	Same
W5		4	30	Same
W6	4	1	33	Below
W6		2	35	Below
W6		3	35	Same
W6		4	33	Same
W7	4	1	36	Below
W7		2	38	Below
W7		3	38	Same
W7		4	36	Same
W8	4	1	70	Below
W8		2	85	Below
W8		3	85	Same
W8		4	70	Same
W9	4	1	74	Below
W9		2	90	Below
W9		3	90	Same
W9		4	74	Same
W10	4	1	71	Below
W10		2	92	Below
W10		3	92	Same
W10		4	71	Same
W11	4	1	94	Below
W11		2	75	Below
W11		3	75	Same
W11		4	94	Same
W12	4	1	85	Below
W12		2	86	Below
W12		3	86	Same
W12		4	85	Same
W13	4	1	87	Below
W13		2	88	Below
W13		3	88	Same
W13		4	87	Same
W14	4	1	89	Below

Table 1.8 - Wall Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
W14		2	91	Below
W14		3	91	Same
W14		4	89	Same
W15	4	1	91	Below
W15		2	90	Below
W15		3	90	Same
W15		4	91	Same
W16	4	1	93	Below
W16		2	94	Below
W16		3	94	Same
W16		4	93	Same
W17	4	1	91	Below
W17		2	102	Below
W17		3	102	Same
W17		4	91	Same
W18	4	1	124	Below
W18		2	125	Below
W18		3	125	Same
W18		4	124	Same
W19	4	1	120	Below
W19		2	132	Below
W19		3	132	Same
W19		4	120	Same
W20	4	1	128	Below
W20		2	124	Below
W20		3	124	Same
W20		4	128	Same
W21	4	1	129	Below
W21		2	125	Below
W21		3	125	Same
W21		4	129	Same
W22	4	1	128	Below
W22		2	129	Below
W22		3	129	Same
W22		4	128	Same
W23	4	1	130	Below
W23		2	132	Below
W23		3	132	Same
W23		4	130	Same
W24	4	1	132	Below
W24		2	133	Below
W24		3	133	Same
W24		4	132	Same
W25	4	1	132	Below
W25		2	134	Below
W25		3	134	Same

Table 1.8 - Wall Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
W25		4	132	Same
W26	4	1	146	Below
W26		2	147	Below
W26		3	147	Same
W26		4	146	Same
W27	4	1	147	Below
W27		2	148	Below
W27		3	148	Same
W27		4	147	Same
W28	4	1	147	Below
W28		2	156	Below
W28		3	156	Same
W28		4	147	Same
W29	4	1	133	Below
W29		2	169	Below
W29		3	169	Same
W29		4	133	Same
W30	4	1	134	Below
W30		2	170	Below
W30		3	170	Same
W30		4	134	Same
W31	4	1	147	Below
W31		2	167	Below
W31		3	167	Same
W31		4	147	Same
W32	4	1	148	Below
W32		2	168	Below
W32		3	168	Same
W32		4	148	Same
W33	4	1	167	Below
W33		2	168	Below
W33		3	168	Same
W33		4	167	Same
W34	4	1	206	Below
W34		2	236	Below
W34		3	236	Same
W34		4	206	Same
W35	4	1	205	Below
W35		2	241	Below
W35		3	241	Same
W35		4	205	Same
W36	4	1	233	Below
W36		2	234	Below
W36		3	234	Same
W36		4	233	Same
W37	4	1	234	Below

Table 1.8 - Wall Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
W37		2	235	Below
W37		3	235	Same
W37		4	234	Same
W38	4	1	234	Below
W38		2	236	Below
W38		3	236	Same
W38		4	234	Same
W39	4	1	239	Below
W39		2	240	Below
W39		3	240	Same
W39		4	239	Same
W40	4	1	247	Below
W40		2	239	Below
W40		3	239	Same
W40		4	247	Same
W41	4	1	242	Below
W41		2	243	Below
W41		3	243	Same
W41		4	242	Same
W42	4	1	246	Below
W42		2	247	Below
W42		3	247	Same
W42		4	246	Same
W43	4	1	242	Below
W43		2	253	Below
W43		3	253	Same
W43		4	242	Same
W44	4	1	243	Below
W44		2	254	Below
W44		3	254	Same
W44		4	243	Same
W45	4	1	239	Below
W45		2	257	Below
W45		3	257	Same
W45		4	239	Same
W46	4	1	240	Below
W46		2	258	Below
W46		3	258	Same
W46		4	240	Same
W47	4	1	259	Below
W47		2	234	Below
W47		3	234	Same
W47		4	259	Same
W48	4	1	253	Below
W48		2	254	Below
W48		3	254	Same

Table 1.8 - Wall Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
W48		4	253	Same
W49	4	1	257	Below
W49		2	258	Below
W49		3	258	Same
W49		4	257	Same
W50	4	1	272	Below
W50		2	291	Below
W50		3	291	Same
W50		4	272	Same
W51	4	1	275	Below
W51		2	291	Below
W51		3	291	Same
W51		4	275	Same
W52	4	1	285	Below
W52		2	283	Below
W52		3	283	Same
W52		4	285	Same
W53	4	1	285	Below
W53		2	286	Below
W53		3	286-1	Same
W53		4	285-1	Same
W54	4	1	288	Below
W54		2	286	Below
W54		3	286	Same
W54		4	288	Same
W55	4	1	289	Below
W55		2	291	Below
W55		3	291	Same
W55		4	289	Same
W56	4	1	290	Below
W56		2	291	Below
W56		3	291	Same
W56		4	290	Same
W57	4	1	297	Below
W57		2	298	Below
W57		3	298	Same
W57		4	297	Same
W58	4	1	298	Below
W58		2	299	Below
W58		3	299	Same
W58		4	298	Same
W59	4	1	289	Below
W59		2	305	Below
W59		3	305	Same
W59		4	289	Same
W60	4	1	283	Below

Table 1.8 - Wall Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
W60		2	306	Below
W60		3	306	Same
W60		4	283	Same
W61	4	1	298	Below
W61		2	304	Below
W61		3	304	Same
W61		4	298	Same
W62	4	1	298	Below
W62		2	310	Below
W62		3	310	Same
W62		4	298	Same
W63	4	1	299	Below
W63		2	311	Below
W63		3	311	Same
W63		4	299	Same
W64	4	1	310	Below
W64		2	311	Below
W64		3	311	Same
W64		4	310	Same
W65	4	1	325	Below
W65		2	329	Below
W65		3	329	Same
W65		4	325	Same
W66	4	1	338	Below
W66		2	354	Below
W66		3	354	Same
W66		4	338	Same
W67	4	1	339	Below
W67		2	354	Below
W67		3	354	Same
W67		4	339	Same
W68	4	1	340	Below
W68		2	367	Below
W68		3	367	Same
W68		4	340	Same
W69	4	1	355	Below
W69		2	354	Below
W69		3	354	Same
W69		4	355	Same
W70	4	1	354	Below
W70		2	356	Below
W70		3	356	Same
W70		4	354	Same
W71	4	1	359	Below
W71		2	357	Below
W71		3	357	Same

Table 1.8 - Wall Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
W71		4	359	Same
W72	4	1	358	Below
W72		2	360	Below
W72		3	360	Same
W72		4	358	Same
W73	4	1	362	Below
W73		2	363	Below
W73		3	363	Same
W73		4	362	Same
W74	4	1	364	Below
W74		2	361	Below
W74		3	361	Same
W74		4	364	Same
W75	4	1	366	Below
W75		2	367	Below
W75		3	367	Same
W75		4	366	Same
W76	4	1	365	Below
W76		2	369	Below
W76		3	369	Same
W76		4	365	Same

Table 1.9 - Null Area Bays

Label	NumPoints	PointNumber	PointBay	PointStory
A1	4	1	5	Same
A1		2	6	Same
A1		3	14	Same
A1		4	13	Same
A2	4	1	141	Same
A2		2	140	Same
A2		3	96	Same
A2		4	97	Same
A3	4	1	114	Same
A3		2	115	Same
A3		3	131	Same
A3		4	130	Same
A4	4	1	130	Same
A4		2	133	Same
A4		3	235	Same
A4		4	233	Same
A5	4	1	162	Same
A5		2	163	Same
A5		3	212	Same
A5		4	211	Same
A6	4	1	165	Same
A6		2	166	Same

Table 1.9 - Null Area Bays (continued)

Label	NumPoints	PointNumber	PointBay	PointStory
A6		3	225	Same
A6		4	224	Same
A7	4	1	250	Same
A7		2	251	Same
A7		3	295	Same
A7		4	294	Same
A8	4	1	377	Same
A8		2	378	Same
A8		3	388	Same
A8		4	387	Same

2 Properties

This chapter provides property information for materials, frame sections, shell sections, and links.

2.1 Materials

Table 2.1 - Material Properties - General

Material	Type	SymType	Grade	Color	Notes
3000Psi	Concrete	Isotropic	f'c 3000 psi	Cyan	
5000Psi	Concrete	Isotropic	Unknown	Blue	
A416Gr270	Tendon	Uniaxial	Unknown	Green	
A500GrB46	Steel	Isotropic	Unknown	Green	
A615Gr60	Rebar	Uniaxial	Unknown	Blue	
M1500Psi	Masonry	Isotropic	Unknown	Blue	
Wood1500	Other	Isotropic	Unknown	Magenta	

2.2 Frame Sections

Table 2.2 - Frame Section Property Definitions - Summary (Part 1 of 3)

Name	Material	Shape	Color	Area in2	J in4	I33 in4	I22 in4	As2 in2	As3 in2
2B-1	3000Psi	Concrete Rectangular	Magenta	352	6649.25	56789.33	1877.33	293.33	293.33
2B-10	3000Psi	Concrete Rectangular	Yellow	352	6649.25	56789.33	1877.33	293.33	293.33
2B-11	3000Psi	Concrete Rectangular	Magenta	256	4601.45	21845.33	1365.33	213.33	213.33
2B-12	3000Psi	Concrete Rectangular	Magenta	256	4601.45	21845.33	1365.33	213.33	213.33
2B-13	3000Psi	Concrete Rectangular	Magenta	352	16595.63	14197.33	7509.33	293.33	293.33
2B-14	3000Psi	Concrete Rectangular	Yellow	304	5625.31	36581.33	1621.33	253.33	253.33
2B-15	3000Psi	Concrete Rectangular	Gray8Dark	528	20991.45	85184	6336	440	440
2B-16	3000Psi	Concrete Rectangular	Blue	384	7331.9	73728	2048	320	320
2B-17	3000Psi	Concrete Rectangular	Green	240	7212.47	8000	2880	200	200
2B-18	3000Psi	Concrete Rectangular	Cyan	240	7212.47	8000	2880	200	200
2B-19	3000Psi	Concrete Rectangular	Red	240	7212.47	8000	2880	200	200
2B-2	3000Psi	Concrete Rectangular	Magenta	384	7331.9	73728	2048	320	320
2B-20	3000Psi	Concrete Rectangular	Magenta	440	26979.1	17746.67	14666.67	366.67	366.67
2B-21	3000Psi	Concrete Rectangular	Yellow	160	2555.01	5333.33	853.33	133.33	133.33
2B-22	3000Psi	Concrete Rectangular	Gray8Dark	160	2555.01	5333.33	853.33	133.33	133.33
2B-23	3000Psi	Concrete Rectangular	Blue	160	2555.01	5333.33	853.33	133.33	133.33
2B-24	3000Psi	Concrete Rectangular	Green	160	2555.01	5333.33	853.33	133.33	133.33
2B-3	3000Psi	Concrete Rectangular	Yellow	352	16595.63	14197.33	7509.33	293.33	293.33
2B-37	3000Psi	Concrete Rectangular	Red	176	2895.76	7098.67	938.67	146.67	146.67
2B-38	3000Psi	Concrete Rectangular	Magenta	176	2895.76	7098.67	938.67	146.67	146.67
2B-4	3000Psi	Concrete Rectangular	Gray8Dark	216	6085.12	5832	2592	180	180
2B-43	3000Psi	Concrete Rectangular	Red	256	4601.45	21845.33	1365.33	213.33	213.33
2B-44	3000Psi	Concrete Rectangular	Magenta	128	1874.99	2730.67	682.67	106.67	106.67
2B-45	3000Psi	Concrete Rectangular	Cyan	128	1874.99	2730.67	682.67	106.67	106.67
2B-5	3000Psi	Concrete Rectangular	Green	192	3236.72	9216	1024	160	160
2B-6	3000Psi	Concrete Rectangular	Blue	256	4601.45	21845.33	1365.33	213.33	213.33
2B-7	3000Psi	Concrete Rectangular	Cyan	440	26979.1	17746.67	14666.67	366.67	366.67
2B-8	3000Psi	Concrete Rectangular	Red	192	3236.72	9216	1024	160	160

Table 2.2 - Frame Section Property Definitions - Summary (Part 1 of 3, continued)

Name	Material	Shape	Color	Area in2	J in4	I33 in4	I22 in4	As2 in2	As3 in2
2B-9	3000Psi	Concrete Rectangular	Magenta	112	1536.82	1829.33	597.33	93.33	93.33
C-1	3000Psi	Concrete Rectangular	Blue	256	4601.45	21845.33	1365.33	213.33	213.33
C-10	3000Psi	SD Section	Blue	280	5423.01	4653.1	17919.1	196.06	203.43
C-11	3000Psi	Concrete Rectangular	Magenta	384	14084.62	32768	4608	320	320
C-12	3000Psi	Concrete Rectangular	Yellow	240	7212.47	8000	2880	200	200
C12X12	3000Psi	Concrete Rectangular	Green	144	2920.32	1728	1728	120	120
C-13	3000Psi	Concrete Rectangular	Blue	96	1202	1152	512	80	80
C-14	3000Psi	Concrete Rectangular	Green	1040	105127.94	234346.67	34666.67	866.67	866.67
C-15	3000Psi	Concrete Rectangular	Cyan	176	2895.76	7098.67	938.67	146.67	146.67
C-16	3000Psi	Concrete Rectangular	Red	168	2725.35	6174	896	140	140
C-19	3000Psi	Concrete Rectangular	Red	216	3748.39	13122	1152	180	180
C-2	3000Psi	Concrete Rectangular	Green	192	4976.26	4096	2304	160	160
C-3	3000Psi	Concrete Rectangular	Blue	256	4601.45	21845.33	1365.33	213.33	213.33
C-4	3000Psi	Concrete Rectangular	Cyan	384	14084.62	32768	4608	320	320
C-5	3000Psi	Concrete Rectangular	Magenta	128	1874.99	2730.67	682.67	106.67	106.67
C-7	3000Psi	Concrete Rectangular	Magenta	192	3236.72	9216	1024	160	160
C-8	3000Psi	Concrete Rectangular	Magenta	264	4772.09	23958	1408	220	220
C-9	3000Psi	SD Section	Red	560	11757.05	65914.67	67242.67	412.83	269.75
HSS4X4X1/2	A500GrB46	Steel Tube	Yellow	6.02	21	11.9	11.9	3.72	3.72
HSS4X4X5/16	A500GrB46	Steel Tube	Blue	4.1	15.3	9.14	9.14	2.33	2.33
HSS6X4X3/8	A500GrB46	Steel Tube	Blue	6.18	32.8	28.3	14.9	4.19	2.79
HSS6X6X1/2	A500GrB46	Steel Tube	Gray8Dark	9.74	81.1	48.3	48.3	5.58	5.58
HSS6X6X3/8	A500GrB46	Steel Tube	Red	7.58	64.6	39.5	39.5	4.19	4.19
HSS8X6X3/8	A500GrB46	Steel Tube	Green	8.97	100	79.1	50.6	5.58	4.19
HSS8X8X5/8	A500GrB46	Steel Tube	Green	16.4	244	146	146	9.3	9.3
RB-1	3000Psi	Concrete Rectangular	Cyan	768	51787.6	147456	16384	640	640
RB-10	3000Psi	Concrete Rectangular	Gray8Dark	504	19839.86	74088	6048	420	420
RB-11	3000Psi	Concrete Rectangular	Blue	504	19839.86	74088	6048	420	420
RB-12	3000Psi	Concrete Rectangular	Green	480	31750.31	23040	16000	400	400
RB-13	3000Psi	Concrete Rectangular	Cyan	504	19839.86	74088	6048	420	420
RB-14	3000Psi	Concrete Rectangular	Red	504	19839.86	74088	6048	420	420
RB-15	3000Psi	Concrete Rectangular	Magenta	208	3577.82	11717.33	1109.33	173.33	173.33
RB-2	3000Psi	Concrete Rectangular	Yellow	672	43605.59	98784	14336	560	560
RB-3	3000Psi	Concrete Rectangular	Gray8Dark	576	35434.19	62208	12288	480	480
RB-4	3000Psi	Concrete Rectangular	Blue	176	2895.76	7098.67	938.67	146.67	146.67
RB-5	3000Psi	Concrete Rectangular	Cyan	504	19839.86	74088	6048	420	420
RB-6	3000Psi	Concrete Rectangular	Cyan	576	35434.19	62208	12288	480	480
RB-7	3000Psi	Concrete Rectangular	Red	176	2895.76	7098.67	938.67	146.67	146.67
RB-8	3000Psi	Concrete Rectangular	Magenta	504	19839.86	74088	6048	420	420
RB-9	3000Psi	Concrete Rectangular	Yellow	504	19839.86	74088	6048	420	420
TB-1	3000Psi	Concrete Rectangular	Magenta	96	1202	1152	512	80	80
TB-2	3000Psi	Concrete Rectangular	Cyan	352	16595.63	14197.33	7509.33	293.33	293.33

Table 2.2 - Frame Section Property Definitions - Summary (Part 2 of 3)

Name	S33Pos in3	S33Neg in3	S22Pos in3	S22Neg in3	Z33 in3	Z22 in3	R33 in	R22 in	CG Offset 3 in	CG Offset 2 in	PNA Offset 3 in
2B-1	2581.33	2581.33	469.33	469.33	3872	704	12.7017	2.3094	0	0	0
2B-10	2581.33	2581.33	469.33	469.33	3872	704	12.7017	2.3094	0	0	0
2B-11	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-12	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-13	1290.67	1290.67	938.67	938.67	1936	1408	6.3509	4.6188	0	0	0
2B-14	1925.33	1925.33	405.33	405.33	2888	608	10.9697	2.3094	0	0	0
2B-15	3872	3872	1056	1056	5808	1584	12.7017	3.4641	0	0	0
2B-16	3072	3072	512	512	4608	768	13.8564	2.3094	0	0	0
2B-17	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
2B-18	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
2B-19	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
2B-2	3072	3072	512	512	4608	768	13.8564	2.3094	0	0	0
2B-20	1613.33	1613.33	1466.67	1466.67	2420	2200	6.3509	5.7735	0	0	0
2B-21	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-22	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-23	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-24	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-3	1290.67	1290.67	938.67	938.67	1936	1408	6.3509	4.6188	0	0	0
2B-37	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
2B-38	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
2B-4	648	648	432	432	972	648	5.1962	3.4641	0	0	0
2B-43	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-44	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
2B-45	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
2B-5	768	768	256	256	1152	384	6.9282	2.3094	0	0	0
2B-6	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-7	1613.33	1613.33	1466.67	1466.67	2420	2200	6.3509	5.7735	0	0	0
2B-8	768	768	256	256	1152	384	6.9282	2.3094	0	0	0
2B-9	261.33	261.33	149.33	149.33	392	224	4.0415	2.3094	0	0	0
C-1	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
C-10	798.33	457.47	1143.43	1581.76	906.07	1938	4.0765	7.9998	-2.1714	2.1714	0
C-11	2048	2048	768	768	3072	1152	9.2376	3.4641	0	0	0
C-12	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
C12X12	288	288	288	288	432	432	3.4641	3.4641	0	0	0
C-13	192	192	128	128	288	192	3.4641	2.3094	0	0	0
C-14	9013.33	9013.33	3466.67	3466.67	13520	5200	15.0111	5.7735	0	0	0
C-15	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
C-16	588	588	224	224	882	336	6.0622	2.3094	0	0	0
C-19	972	972	288	288	1458	432	7.7942	2.3094	0	0	0
C-2	512	512	384	384	768	576	4.6188	3.4641	0	0	0
C-3	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
C-4	2048	2048	768	768	3072	1152	9.2376	3.4641	0	0	0
C-5	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
C-7	768	768	256	256	1152	384	6.9282	2.3094	0	0	0

Table 2.2 - Frame Section Property Definitions - Summary (Part 2 of 3, continued)

Name	S33Pos in3	S33Neg in3	S22Pos in3	S22Neg in3	Z33 in3	Z22 in3	R33 in	R22 in	CG Offset 3 in	CG Offset 2 in	PNA Offset 3 in
C-8	1452	1452	352	352	2178	528	9.5263	2.3094	0	0	0
C-9	2865.86	2865.86	4202.67	4202.67	4616	5696	10.8492	10.9579	0	0	0
HSS4X4X1/2	5.95	5.95	5.95	5.95	7.7	7.7	1.406	1.406	0	0	0
HSS4X4X5/16	4.57	4.57	4.57	4.57	5.59	5.59	1.4931	1.4931	0	0	0
HSS6X4X3/8	9.43	9.43	7.45	7.45	11.9	8.94	2.1399	1.5527	0	0	0
HSS6X6X1/2	16.1	16.1	16.1	16.1	19.8	19.8	2.2269	2.2269	0	0	0
HSS6X6X3/8	13.17	13.17	13.17	13.17	15.8	15.8	2.2828	2.2828	0	0	0
HSS8X6X3/8	19.78	19.78	16.87	16.87	24.1	19.8	2.9696	2.3751	0	0	0
HSS8X8X5/8	36.5	36.5	36.5	36.5	44.7	44.7	2.9837	2.9837	0	0	0
RB-1	6144	6144	2048	2048	9216	3072	13.8564	4.6188	0	0	0
RB-10	3528	3528	1008	1008	5292	1512	12.1244	3.4641	0	0	0
RB-11	3528	3528	1008	1008	5292	1512	12.1244	3.4641	0	0	0
RB-12	1920	1920	1600	1600	2880	2400	6.9282	5.7735	0	0	0
RB-13	3528	3528	1008	1008	5292	1512	12.1244	3.4641	0	0	0
RB-14	3528	3528	1008	1008	5292	1512	12.1244	3.4641	0	0	0
RB-15	901.33	901.33	277.33	277.33	1352	416	7.5056	2.3094	0	0	0
RB-2	4704	4704	1792	1792	7056	2688	12.1244	4.6188	0	0	0
RB-3	3456	3456	1536	1536	5184	2304	10.3923	4.6188	0	0	0
RB-4	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
RB-5	3528	3528	1008	1008	5292	1512	12.1244	3.4641	0	0	0
RB-6	3456	3456	1536	1536	5184	2304	10.3923	4.6188	0	0	0
RB-7	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
RB-8	3528	3528	1008	1008	5292	1512	12.1244	3.4641	0	0	0
RB-9	3528	3528	1008	1008	5292	1512	12.1244	3.4641	0	0	0
TB-1	192	192	128	128	288	192	3.4641	2.3094	0	0	0
TB-2	1290.67	1290.67	938.67	938.67	1936	1408	6.3509	4.6188	0	0	0

Table 2.2 - Frame Section Property Definitions - Summary (Part 3 of 3)

Name	Area Modifier	As2 Modifier	As3 Modifier	J Modifier	I33 Modifier	I22 Modifier	Mass Modifier	Weight Modifier
2B-1	1	1	1	1	1	1	1	1
2B-10	1	1	1	1	1	1	1	1
2B-11	1	1	1	1	1	1	1	1
2B-12	1	1	1	1	1	1	1	1
2B-13	1	1	1	1	1	1	1	1
2B-14	1	1	1	1	1	1	1	1
2B-15	1	1	1	1	1	1	1	1
2B-16	1	1	1	1	1	1	1	1
2B-17	1	1	1	1	1	1	1	1
2B-18	1	1	1	1	1	1	1	1
2B-19	1	1	1	1	1	1	1	1
2B-2	1	1	1	1	1	1	1	1
2B-20	1	1	1	1	1	1	1	1
2B-21	1	1	1	1	1	1	1	1

Table 2.2 - Frame Section Property Definitions - Summary (Part 3 of 3, continued)

Name	Area Modifier	As2 Modifier	As3 Modifier	J Modifier	I33 Modifier	I22 Modifier	Mass Modifier	Weight Modifier
2B-22	1	1	1	1	1	1	1	1
2B-23	1	1	1	1	1	1	1	1
2B-24	1	1	1	1	1	1	1	1
2B-3	1	1	1	1	1	1	1	1
2B-37	1	1	1	1	1	1	1	1
2B-38	1	1	1	1	1	1	1	1
2B-4	1	1	1	1	1	1	1	1
2B-43	1	1	1	1	1	1	1	1
2B-44	1	1	1	1	1	1	1	1
2B-45	1	1	1	1	1	1	1	1
2B-5	1	1	1	1	1	1	1	1
2B-6	1	1	1	1	1	1	1	1
2B-7	1	1	1	1	1	1	1	1
2B-8	1	1	1	1	1	1	1	1
2B-9	1	1	1	1	1	1	1	1
C-1	1	1	1	1	1	1	1	1
C-10	1	1	1	1	1	1	1	1
C-11	1	1	1	1	1	1	1	1
C-12	1	1	1	1	1	1	1	1
C12X12	1	1	1	1	1	1	1	1
C-13	1	1	1	1	1	1	1	1
C-14	1	1	1	1	1	1	1	1
C-15	1	1	1	1	1	1	1	1
C-16	1	1	1	1	1	1	1	1
C-19	1	1	1	1	1	1	1	1
C-2	1	1	1	1	1	1	1	1
C-3	1	1	1	1	1	1	1	1
C-4	1	1	1	1	1	1	1	1
C-5	1	1	1	1	1	1	1	1
C-7	1	1	1	1	1	1	1	1
C-8	1	1	1	1	1	1	1	1
C-9	1	1	1	1	1	1	1	1
HSS4X4X1/2	1	1	1	1	1	1	1	1
HSS4X4X5/16	1	1	1	1	1	1	1	1
HSS6X4X3/8	1	1	1	1	1	1	1	1
HSS6X6X1/2	1	1	1	1	1	1	1	1
HSS6X6X3/8	1	1	1	1	1	1	1	1
HSS8X6X3/8	1	1	1	1	1	1	1	1
HSS8X8X5/8	1	1	1	1	1	1	1	1
RB-1	1	1	1	1	1	1	1	1
RB-10	1	1	1	1	1	1	1	1
RB-11	1	1	1	1	1	1	1	1
RB-12	1	1	1	1	1	1	1	1
RB-13	1	1	1	1	1	1	1	1
RB-14	1	1	1	1	1	1	1	1

Table 2.2 - Frame Section Property Definitions - Summary (Part 3 of 3, continued)

Name	Area Modifier	As2 Modifier	As3 Modifier	J Modifier	I33 Modifier	I22 Modifier	Mass Modifier	Weight Modifier
RB-15	1	1	1	1	1	1	1	1
RB-2	1	1	1	1	1	1	1	1
RB-3	1	1	1	1	1	1	1	1
RB-4	1	1	1	1	1	1	1	1
RB-5	1	1	1	1	1	1	1	1
RB-6	1	1	1	1	1	1	1	1
RB-7	1	1	1	1	1	1	1	1
RB-8	1	1	1	1	1	1	1	1
RB-9	1	1	1	1	1	1	1	1
TB-1	1	1	1	1	1	1	1	1
TB-2	1	1	1	1	1	1	1	1

2.3 Shell Sections

Table 2.3 - Area Section Property Definitions - Summary

Name	Type	Element Type	Material	Total Thickness in
12CMU	Wall	Shell-Thin	M1500Psi	12
8CMU	Wall	Shell-Thin	M1500Psi	8
8CW	Wall	Shell-Thin	3000Psi	8
Footing12	Slab	Shell-Thin	3000Psi	12
Footing16	Slab	Shell-Thin	3000Psi	16
Pywood	Slab	Shell-Thin	Wood1500	0.75
Slab8	Slab	Shell-Thin	3000Psi	8

2.4 Reinforcement Sizes

Table 2.4 - Reinforcing Bar Sizes

Name	Diameter in	Area in2
#2	0.25	0.05
#3	0.375	0.11
#4	0.5	0.2
#5	0.625	0.31
#6	0.75	0.44
#7	0.875	0.6
#8	1	0.79
#9	1.128	1
#10	1.27	1.27
#11	1.41	1.56
#14	1.693	2.25
#18	2.257	4

2.5 Links

Table 2.5 - Link Property Definitions - Summary

Name	Type	Degrees of Freedom	Mass lb-s2/ft	Weight kip	Defined Length ft	Defined Area ft2
Link1	Linear	U1	0	0	0.0833	0.01

3 Assignments

This chapter provides a listing of the assignments applied to the model.

3.1 Joint Assignments

Table 3.1 - Joint Assignments - Summary

Story	Label	UniqueName	Diaphragm	Restraints
Upper-Roof	69-1	268	From Area	
Upper-Roof	115-1	267	From Area	
Upper-Roof	164	196	From Area	
Upper-Roof	210	199	From Area	
Upper-Roof	266-1	275	From Area	
Upper-Roof	309-1	276	From Area	
Roof	1	293	D2	
Roof	2	262	D2	
Roof	3	263	D2	
Roof	4	266	D2	
Roof	5	269	D2	
Roof	6	270	D2	
Roof	13	271	D2	
Roof	14	272	D2	
Roof	26	156	D2	
Roof	27	28	D2	
Roof	28	102	D2	
Roof	31	117	D2	
Roof	33	157	D2	
Roof	35	75	D2	
Roof	37	252	D2	
Roof	58-1	213	From Area	
Roof	63	250	D2	
Roof	64	238	D2	
Roof	65	241	D2	
Roof	66	232	D2	
Roof	70	237	D2	
Roof	75	235	D2	
Roof	80	326	D2	
Roof	81	327	D2	
Roof	84	76	D2	
Roof	85	159	D2	
Roof	86	198	D2	
Roof	87	204	D2	
Roof	87-1	214	From Area	
Roof	88	211	D2	
Roof	89	218	D2	
Roof	91	251	D2	
Roof	93	191	D2	
Roof	94	182	D2	
Roof	96	330	D2	
Roof	97	331	D2	

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Roof	102	183	D2	
Roof	120	87	D2	
Roof	130	88	D2	
Roof	132	184	D2	
Roof	133	185	D2	
Roof	135	362	D2	
Roof	136	356	D2	
Roof	140	329	D2	
Roof	141	328	D2	
Roof	146	192	D2	
Roof	147	180	D2	
Roof	156	264	D2	
Roof	159	325	D2	
Roof	160	324	D2	
Roof	161	194	D2	
Roof	162	365	D2	
Roof	163	366	D2	
Roof	165	350	D2	
Roof	166	352	D2	
Roof	169	222	D2	
Roof	205	221	D2	
Roof	211	367	D2	
Roof	212	364	D2	
Roof	224	353	D2	
Roof	225	351	D2	
Roof	230	340	D2	
Roof	231	341	D2	
Roof	232	132	D2	
Roof	233	27	D2	
Roof	234	187	D2	
Roof	235	186	D2	
Roof	237	357	D2	
Roof	238	363	D2	
Roof	239	227	D2	
Roof	241	226	D2	
Roof	246	190	D2	
Roof	247	189	D2	
Roof	250	344	D2	
Roof	251	345	D2	
Roof	259	101	D2	
Roof	272	239	D2	
Roof	282	97	D2	
Roof	283	158	D2	
Roof	284	225	D2	
Roof	285	233	D2	
Roof	285-1	284	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Roof	286	282	D2	
Roof	286-1	181	From Area	
Roof	287	228	D2	
Roof	288	286	D2	
Roof	290	242	D2	
Roof	291	188	D2	
Roof	293	230	D2	
Roof	294	347	D2	
Roof	295	346	D2	
Roof	297	167	D2	
Roof	298	144	D2	
Roof	302	343	D2	
Roof	303	342	D2	
Roof	304	261	D2	
Roof	306	245	D2	
Roof	315	231	D2	
Roof	316	229	D2	
Roof	333-1	195	From Area	
Roof	339	256	D2	
Roof	340	246	D2	
Roof	354	150	D2	
Roof	355	257	D2	
Roof	357	291	D2	
Roof	359	290	D2	
Roof	361	289	D2	
Roof	364	285	D2	
Roof	366	247	D2	
Roof	367	162	D2	
Roof	368	224	D2	
Roof	377	277	D2	
Roof	378	278	D2	
Roof	387	279	D2	
Roof	388	280	D2	
Roof	389	304	D2	
Roof	390	223	D2	
Roof	391	217	D2	
Roof	392	122	D2	
Roof	190	125	D2	
Roof	394	153	D2	
Roof	396	207	D2	
Roof	398	209	D2	
Roof	400	215	D2	
Roof	402	253	D2	
Roof	404	255	D2	
Roof	406	274	D2	
Roof	408	296	D2	

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Roof	410	299	D2	
Roof	412	301	D2	
Roof	414	303	D2	
Story1	23	2	D1	
Story1	24	6	D1	
Story1	25	8	D1	
Story1	26	127	D1	
Story1	27	99	D1	
Story1	28	116	D1	
Story1	29	10	D1	
Story1	30	14	D1	
Story1	31	154	D1	
Story1	32	26	D1	
Story1	33	193	D1	
Story1	34	105	D1	
Story1	35	4	D1	
Story1	36	78	D1	
Story1	38	80	D1	
Story1	39	12	D1	
Story1	70	236	D1	
Story1	71	74	D1	
Story1	74	166	D1	
Story1	75	234	D1	
Story1	78	115	D1	
Story1	79	119	D1	
Story1	85	133	D1	
Story1	86	197	D1	
Story1	87	203	D1	
Story1	88	210	D1	
Story1	89	216	D1	
Story1	90	16	D1	
Story1	91	134	D1	
Story1	92	72	D1	
Story1	93	120	D1	
Story1	94	128	D1	
Story1	95	92	D1	
Story1	102	163	D1	
Story1	114	200	D1	
Story1	115	205	D1	
Story1	120	18	D1	
Story1	123	337	D1	
Story1	124	332	D1	
Story1	125	323	D1	
Story1	128	336	D1	
Story1	129	335	D1	
Story1	130	20	D1	

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Story1	131	206	D1	
Story1	132	82	D1	
Story1	133	141	D1	
Story1	134	22	D1	
Story1	144	114	D1	
Story1	145	70	D1	
Story1	146	124	D1	
Story1	147	138	D1	
Story1	148	175	D1	
Story1	153	312	D1	
Story1	154	145	D1	
Story1	155	151	D1	
Story1	156	265	D1	
Story1	167	126	D1	
Story1	167-1	438	From Area	
Story1	168	174	D1	
Story1	169	147	D1	
Story1	170	24	D1	
Story1	177	482	From Area	
Story1	177-1	480	From Area	
Story1	204	465	From Area	
Story1	204-1	454	From Area	
Story1	205	148	D1	
Story1	206	30	D1	
Story1	207	477	From Area	
Story1	207-1	466	From Area	
Story1	215	311	D1	
Story1	216	143	D1	
Story1	217	152	D1	
Story1	233	83	D1	
Story1	234	86	D1	
Story1	235	142	D1	
Story1	236	32	D1	
Story1	239	118	D1	
Story1	239-1	428	From Area	
Story1	240	171	D1	
Story1	241	220	D1	
Story1	242	316	D1	
Story1	243	313	D1	
Story1	244	111	D1	
Story1	245	68	D1	
Story1	246	110	D1	
Story1	247	137	D1	
Story1	252	338	D1	
Story1	253	315	D1	
Story1	254	314	D1	

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Story1	257	95	D1	
Story1	258	170	D1	
Story1	259	34	D1	
Story1	272	240	D1	
Story1	275	36	D1	
Story1	283	135	D1	
Story1	285	283	D1	
Story1	286	281	D1	
Story1	288	288	D1	
Story1	289	40	D1	
Story1	290	243	D1	
Story1	291	38	D1	
Story1	292	96	D1	
Story1	296	109	D1	
Story1	297	106	D1	
Story1	298	108	D1	
Story1	299	179	D1	
Story1	304	260	D1	
Story1	305	42	D1	
Story1	306	244	D1	
Story1	307	113	D1	
Story1	308	66	D1	
Story1	309	90	D1	
Story1	310	146	D1	
Story1	311	178	D1	
Story1	325	44	D1	
Story1	329	46	D1	
Story1	338	98	D1	
Story1	339	258	D1	
Story1	340	248	D1	
Story1	353	64	D1	
Story1	354	62	D1	
Story1	355	259	D1	
Story1	356	60	D1	
Story1	357	297	D1	
Story1	358	58	D1	
Story1	359	295	D1	
Story1	360	56	D1	
Story1	361	294	D1	
Story1	362	54	D1	
Story1	363	52	D1	
Story1	364	292	D1	
Story1	365	50	D1	
Story1	366	249	D1	
Story1	367	136	D1	
Story1	369	48	D1	

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Story1	385	140	D1	
Story1	386	131	D1	
Story1	393	123	D1	
Story1	203	130	D1	
Story1	395	161	D1	
Story1	397	208	D1	
Story1	399	212	D1	
Story1	401	219	D1	
Story1	403	254	D1	
Story1	405	273	D1	
Story1	407	287	D1	
Story1	409	298	D1	
Story1	411	300	D1	
Story1	413	302	D1	
Story1	415	426	D1	
Base	7	483	From Area	UX; UY; UZ
Base	8	497	From Area	UX; UY; UZ
Base	9	417	From Area	UX; UY; UZ
Base	10	418	From Area	UX; UY; UZ
Base	11	421	From Area	UX; UY; UZ
Base	12	422	From Area	UX; UY; UZ
Base	15	502	From Area	UX; UY; UZ
Base	16	429	From Area	UX; UY; UZ
Base	17	432	From Area	UX; UY; UZ
Base	18	434	From Area	UX; UY; UZ
Base	19	436	From Area	UX; UY; UZ
Base	20	443	From Area	UX; UY; UZ
Base	21	439	From Area	UX; UY; UZ
Base	22	440	From Area	UX; UY; UZ
Base	23	1	From Area	UX; UY; UZ
Base	24	5	From Area	UX; UY; UZ
Base	25	7	From Area	UX; UY; UZ
Base	26	107	From Area	UX; UY; UZ
Base	29	9	From Area	UX; UY; UZ
Base	30	13	From Area	UX; UY; UZ
Base	32	25	From Area	UX; UY; UZ
Base	34	103	From Area	UX; UY; UZ
Base	35	3	From Area	UX; UY; UZ
Base	36	77	From Area	UX; UY; UZ
Base	38	79	From Area	UX; UY; UZ
Base	39	11	From Area	UX; UY; UZ
Base	40	509	From Area	UX; UY; UZ
Base	41	430	From Area	UX; UY; UZ
Base	42	433	From Area	UX; UY; UZ
Base	43	435	From Area	UX; UY; UZ
Base	44	437	From Area	UX; UY; UZ

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Base	45	444	From Area	UX; UY; UZ
Base	46	425	From Area	UX; UY; UZ
Base	47	499	From Area	UX; UY; UZ
Base	48	511	From Area	UX; UY; UZ
Base	49	512	From Area	UX; UY; UZ
Base	50	498	From Area	UX; UY; UZ
Base	51	420	From Area	UX; UY; UZ
Base	52	419	From Area	UX; UY; UZ
Base	53	424	From Area	UX; UY; UZ
Base	54	423	From Area	UX; UY; UZ
Base	55	442	From Area	UX; UY; UZ
Base	56	449	From Area	UX; UY; UZ
Base	57	450	From Area	
Base	58	441	From Area	UX; UY; UZ
Base	59	397	From Area	UX; UY; UZ
Base	60	489	From Area	UX; UY; UZ
Base	61	488	From Area	UX; UY; UZ
Base	62	398	From Area	UX; UY; UZ
Base	67	445	From Area	UX; UY; UZ
Base	68	451	From Area	
Base	69	446	From Area	UX; UY; UZ
Base	71	73	From Area	UX; UY; UZ
Base	72	377	From Area	UX; UY; UZ
Base	73	378	From Area	UX; UY; UZ
Base	74	165	From Area	UX; UY; UZ
Base	76	381	From Area	UX; UY; UZ
Base	77	382	From Area	UX; UY; UZ
Base	82	463	From Area	UX; UY; UZ
Base	83	456	From Area	UX; UY; UZ
Base	85	94	From Area	UX; UY; UZ
Base	90	15	From Area	UX; UY; UZ
Base	91	155	From Area	UX; UY; UZ
Base	92	71	From Area	UX; UY; UZ
Base	95	91	From Area	UX; UY; UZ
Base	98	464	From Area	UX; UY; UZ
Base	99	457	From Area	UX; UY; UZ
Base	100	380	From Area	UX; UY; UZ
Base	101	379	From Area	UX; UY; UZ
Base	102	160	From Area	UX; UY; UZ
Base	103	384	From Area	UX; UY; UZ
Base	104	555	From Area	UX; UY; UZ
Base	105	556	From Area	UX; UY; UZ
Base	106	383	From Area	UX; UY; UZ
Base	107	448	From Area	UX; UY; UZ
Base	108	202	From Area	UX; UY; UZ
Base	109	447	From Area	UX; UY; UZ

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Base	110	400	From Area	UX; UY; UZ
Base	111	399	From Area	UX; UY; UZ
Base	112	493	From Area	UX; UY; UZ
Base	113	494	From Area	UX; UY; UZ
Base	114	164	From Area	UX; UY; UZ
Base	115	201	From Area	UX; UY; UZ
Base	116	458	From Area	UX; UY; UZ
Base	117	508	From Area	UX; UY; UZ
Base	118	507	From Area	UX; UY; UZ
Base	119	452	From Area	UX; UY; UZ
Base	120	17	From Area	UX; UY; UZ
Base	121	393	From Area	UX; UY; UZ
Base	122	394	From Area	UX; UY; UZ
Base	124	321	From Area	UX; UY; UZ
Base	125	322	From Area	UX; UY; UZ
Base	126	525	From Area	UX; UY; UZ
Base	127	531	From Area	UX; UY; UZ
Base	128	333	From Area	UX; UY; UZ
Base	129	334	From Area	UX; UY; UZ
Base	130	19	From Area	UX; UY; UZ
Base	132	81	From Area	UX; UY; UZ
Base	134	21	From Area	UX; UY; UZ
Base	137	413	From Area	UX; UY; UZ
Base	138	552	From Area	
Base	139	414	From Area	UX; UY; UZ
Base	142	526	From Area	UX; UY; UZ
Base	143	532	From Area	UX; UY; UZ
Base	145	69	From Area	UX; UY; UZ
Base	147	129	From Area	UX; UY; UZ
Base	148	172	From Area	UX; UY; UZ
Base	149	453	From Area	UX; UY; UZ
Base	150	469	From Area	UX; UY; UZ
Base	151	470	From Area	UX; UY; UZ
Base	152	455	From Area	UX; UY; UZ
Base	157	496	From Area	UX; UY; UZ
Base	158	495	From Area	UX; UY; UZ
Base	167	121	From Area	UX; UY; UZ
Base	168	173	From Area	UX; UY; UZ
Base	170	23	From Area	UX; UY; UZ
Base	171	416	From Area	UX; UY; UZ
Base	172	548	From Area	
Base	173	549	From Area	
Base	174	415	From Area	UX; UY; UZ
Base	175	396	From Area	UX; UY; UZ
Base	176	395	From Area	UX; UY; UZ
Base	206	29	From Area	UX; UY; UZ

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Base	208	389	From Area	UX; UY; UZ
Base	209	390	From Area	UX; UY; UZ
Base	213	373	From Area	UX; UY; UZ
Base	214	374	From Area	UX; UY; UZ
Base	218	462	From Area	
Base	219	468	From Area	UX; UY; UZ
Base	220	467	From Area	UX; UY; UZ
Base	221	461	From Area	
Base	222	505	From Area	UX; UY; UZ
Base	223	503	From Area	UX; UY; UZ
Base	226	409	From Area	UX; UY; UZ
Base	227	551	From Area	
Base	228	550	From Area	
Base	229	410	From Area	UX; UY; UZ
Base	233	84	From Area	UX; UY; UZ
Base	234	85	From Area	UX; UY; UZ
Base	236	31	From Area	UX; UY; UZ
Base	239	112	From Area	UX; UY; UZ
Base	240	168	From Area	UX; UY; UZ
Base	242	319	From Area	UX; UY; UZ
Base	243	320	From Area	UX; UY; UZ
Base	245	67	From Area	UX; UY; UZ
Base	248	506	From Area	UX; UY; UZ
Base	249	504	From Area	UX; UY; UZ
Base	253	317	From Area	UX; UY; UZ
Base	254	318	From Area	UX; UY; UZ
Base	255	376	From Area	UX; UY; UZ
Base	256	375	From Area	UX; UY; UZ
Base	257	104	From Area	UX; UY; UZ
Base	258	169	From Area	UX; UY; UZ
Base	259	33	From Area	UX; UY; UZ
Base	260	412	From Area	UX; UY; UZ
Base	261	541	From Area	
Base	262	411	From Area	UX; UY; UZ
Base	263	459	From Area	
Base	264	491	From Area	UX; UY; UZ
Base	265	492	From Area	UX; UY; UZ
Base	266	460	From Area	
Base	267	392	From Area	UX; UY; UZ
Base	268	391	From Area	UX; UY; UZ
Base	269	471	From Area	UX; UY; UZ
Base	270	490	From Area	
Base	271	472	From Area	UX; UY; UZ
Base	273	369	From Area	UX; UY; UZ
Base	274	370	From Area	UX; UY; UZ
Base	275	35	From Area	UX; UY; UZ

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Base	276	385	From Area	UX; UY; UZ
Base	277	386	From Area	UX; UY; UZ
Base	278	405	From Area	UX; UY; UZ
Base	279	543	From Area	
Base	280	542	From Area	
Base	281	406	From Area	UX; UY; UZ
Base	283	93	From Area	UX; UY; UZ
Base	289	39	From Area	UX; UY; UZ
Base	291	37	From Area	UX; UY; UZ
Base	298	149	From Area	UX; UY; UZ
Base	299	176	From Area	UX; UY; UZ
Base	300	372	From Area	UX; UY; UZ
Base	301	371	From Area	UX; UY; UZ
Base	305	41	From Area	UX; UY; UZ
Base	308	65	From Area	UX; UY; UZ
Base	309	89	From Area	UX; UY; UZ
Base	310	139	From Area	UX; UY; UZ
Base	311	177	From Area	UX; UY; UZ
Base	312	474	From Area	UX; UY; UZ
Base	313	476	From Area	UX; UY; UZ
Base	314	473	From Area	UX; UY; UZ
Base	317	359	From Area	UX; UY; UZ
Base	318	479	From Area	UX; UY; UZ
Base	319	478	From Area	UX; UY; UZ
Base	320	360	From Area	UX; UY; UZ
Base	321	408	From Area	UX; UY; UZ
Base	322	527	From Area	UX; UY; UZ
Base	323	528	From Area	UX; UY; UZ
Base	324	407	From Area	UX; UY; UZ
Base	325	43	From Area	UX; UY; UZ
Base	326	475	From Area	UX; UY; UZ
Base	327	388	From Area	UX; UY; UZ
Base	328	387	From Area	UX; UY; UZ
Base	329	45	From Area	UX; UY; UZ
Base	330	368	From Area	UX; UY; UZ
Base	331	486	From Area	UX; UY; UZ
Base	332	487	From Area	UX; UY; UZ
Base	333	361	From Area	UX; UY; UZ
Base	334	401	From Area	UX; UY; UZ
Base	335	530	From Area	UX; UY; UZ
Base	336	529	From Area	UX; UY; UZ
Base	337	402	From Area	UX; UY; UZ
Base	338	100	From Area	UX; UY; UZ
Base	341	305	From Area	UX; UY; UZ
Base	342	306	From Area	UX; UY; UZ
Base	343	309	From Area	UX; UY; UZ

Table 3.1 - Joint Assignments - Summary (continued)

Story	Label	UniqueName	Diaphragm	Restraints
Base	344	310	From Area	UX; UY; UZ
Base	345	349	From Area	UX; UY; UZ
Base	346	485	From Area	UX; UY; UZ
Base	347	484	From Area	UX; UY; UZ
Base	348	354	From Area	UX; UY; UZ
Base	349	515	From Area	UX; UY; UZ
Base	350	513	From Area	UX; UY; UZ
Base	351	521	From Area	UX; UY; UZ
Base	352	518	From Area	
Base	353	63	From Area	UX; UY; UZ
Base	354	61	From Area	UX; UY; UZ
Base	356	59	From Area	UX; UY; UZ
Base	358	57	From Area	UX; UY; UZ
Base	360	55	From Area	UX; UY; UZ
Base	362	53	From Area	UX; UY; UZ
Base	363	51	From Area	UX; UY; UZ
Base	365	49	From Area	UX; UY; UZ
Base	369	47	From Area	UX; UY; UZ
Base	370	404	From Area	UX; UY; UZ
Base	371	403	From Area	UX; UY; UZ
Base	372	516	From Area	UX; UY; UZ
Base	373	514	From Area	UX; UY; UZ
Base	374	510	From Area	UX; UY; UZ
Base	375	522	From Area	UX; UY; UZ
Base	376	519	From Area	
Base	379	308	From Area	UX; UY; UZ
Base	380	307	From Area	UX; UY; UZ
Base	381	348	From Area	UX; UY; UZ
Base	382	339	From Area	UX; UY; UZ
Base	383	358	From Area	UX; UY; UZ
Base	384	355	From Area	UX; UY; UZ

3.2 Frame Assignments

Table 3.2 - Frame Assignments - Summary

Story	Label	UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Max Station Spacing ft	Min Number Stations	Releases
Roof	B2	87	Beam	25.6667	RB-9	RB-9		2		
Roof	B4	102	Beam	15.8229	RB-10	RB-10		2		
Roof	B7	101	Beam	16.7396	RB-8	RB-8		2		
Roof	B9	90	Beam	15.8333	TB-1	TB-1		2		
Roof	B11	116	Beam	3.9999	RB-8	RB-8		2		
Roof	B13	72	Beam	14.6667	RB-11	RB-11		2		
Roof	B16	155	Beam	18	RB-6	RB-6		2		
Roof	B17	75	Beam	18.5833	RB-7	RB-7		2		

Table 3.2 - Frame Assignments - Summary (continued)

Story	Label	UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Max Station Spacing ft	Min Number Stations	Releases
Roof	B22	98	Beam	3	RB-11	RB-11		2		
Roof	B23	96	Beam	15.8333	TB-1	TB-1		2		
Roof	B25	97	Beam	1.1667	TB-1	TB-1		2		
Roof	B28	153	Beam	3.9999	RB-5	RB-5		2		
Roof	B31	100	Beam	20.6667	RB-15	RB-15		2		
Roof	B32	107	Beam	20.6667	RB-12	RB-12		2		
Roof	B35	159	Beam	19.1667	RB-5	RB-5		2		
Roof	B39	77	Beam	15.8333	TB-1	TB-1		2		
Roof	B40	81	Beam	1.1667	TB-1	TB-1		2		
Roof	B42	160	Beam	0.5833	TB-1	TB-1		2		
Roof	B45	151	Beam	4	RB-5	RB-5		2		
Roof	B46	93	Beam	3	RB-13	RB-13		2		
Roof	B48	114	Beam	17.75	RB-3	RB-3		2		
Roof	B49	76	Beam	17.75	RB-4	RB-4		2		
Roof	B50	78	Beam	14.6667	RB-13	RB-13		2		
Roof	B53	92	Beam	15.8333	TB-1	TB-1		2		
Roof	B55	99	Beam	4	RB-2	RB-2		2		
Roof	B59	94	Beam	15.8333	RB-14	RB-14		2		
Roof	B62	84	Beam	14.8333	RB-2	RB-2		2		
Roof	B65	95	Beam	25.6667	RB-1	RB-1		2		
Roof	C2	126	Column	12	C-16	C-16	90		3	
Roof	C4	23	Column	12	C-16	C-16	90		3	
Roof	C6	131	Column	12	C-5	C-5	90		3	
Roof	C8	130	Column	12	C-5	C-5	90		3	
Roof	C11	129	Column	12	C-5	C-5			3	
Roof	C13	132	Column	12	C-5	C-5	90		3	
Roof	C16	68	Column	12	C-5	C-5	90		3	
Roof	C17	63	Column	12	C-7	C-7			3	
Roof	C19	144	Column	12	C-5	C-5			3	
Roof	C20	148	Column	12	C-5	C-5	90		3	
Roof	C21	133	Column	12	C-16	C-16	90		3	
Roof	C25	134	Column	12	C-16	C-16	90		3	
Roof	C28	80	Column	12	C-16	C-16			3	
Roof	C29	142	Column	12	C-5	C-5	90		3	
Roof	C31	141	Column	12	C-5	C-5			3	
Roof	C32	70	Column	12	C-5	C-5	90		3	
Roof	C35	140	Column	12	C-5	C-5			3	
Roof	C36	138	Column	12	C-5	C-5	90		3	
Roof	C37	137	Column	12	C-5	C-5	90		3	
Story1	B1	11	Beam	12	2B-20	2B-20		2		
Story1	B2	13	Beam	25.6667	TB-2	TB-2		2		
Story1	B3	14	Beam	13.8333	2B-23	2B-23		2		
Story1	B4	47	Beam	15.8229	2B-12	2B-12		2		
Story1	B5	16	Beam	15.8229	2B-10	2B-10		2		

Table 3.2 - Frame Assignments - Summary (continued)

Story	Label	UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Max Station Spacing ft	Min Number Stations	Releases
Story1	B6	39	Beam	16.7396	2B-13	2B-13		2		
Story1	B7	46	Beam	16.7396	2B-14	2B-14		2		
Story1	B8	51	Beam	2.6666	2B-22	2B-22		2		
Story1	B9	48	Beam	15.8333	2B-43	2B-43		2		
Story1	B10	66	Beam	12	2B-16	2B-16		2		
Story1	B12	69	Beam	2.3333	2B-16	2B-16		2		
Story1	B14	50	Beam	17.6667	2B-7	2B-7		2		
Story1	B15	57	Beam	19.6667	2B-22	2B-22		2		
Story1	B16	67	Beam	18	2B-4	2B-4		2		
Story1	B18	73	Beam	20.3333	2B-15	2B-15		2		
Story1	B19	64	Beam	5.6667	2B-44	2B-44		2		
Story1	B20	49	Beam	5.25	2B-45	2B-45		2		
Story1	B21	71	Beam	5.25	2B-45	2B-45		2		
Story1	B24	52	Beam	19.5	TB-1	TB-1		2		
Story1	B26	79	Beam	2.6667	2B-22	2B-22		2		
Story1	B27	65	Beam	14.3333	2B-17	2B-17		2		
Story1	B29	89	Beam	11	2B-37	2B-37		2		
Story1	B30	40	Beam	20.6667	2B-5	2B-5		2		
Story1	B32	53	Beam	20.6667	2B-8	2B-8		2		
Story1	B33	45	Beam	24	2B-9	2B-9		2		
Story1	B34	86	Beam	17.6667	2B-38	2B-38		2		
Story1	B36	91	Beam	17.4167	HSS8X8X5/8	HSS8X8X5/8		2		Yes
Story1	B37	43	Beam	22.0833	HSS8X6X3/8	HSS8X6X3/8		2		Yes
Story1	B38	88	Beam	11	2B-37	2B-37		2		
Story1	B39	54	Beam	15.8333	TB-1	TB-1		2		
Story1	B41	55	Beam	3.6667	TB-1	TB-1		2		
Story1	B43	82	Beam	2.6666	2B-21	2B-21		2		
Story1	B44	59	Beam	12	2B-18	2B-18		2		
Story1	B47	56	Beam	17.6667	2B-7	2B-7		2		
Story1	B48	60	Beam	17.75	2B-4	2B-4		2		
Story1	B51	8	Beam	20.6667	2B-15	2B-15		2		
Story1	B52	83	Beam	19.6667	2B-21	2B-21		2		
Story1	B53	21	Beam	15.8333	2B-6	2B-6		2		
Story1	B54	58	Beam	8	2B-19	2B-19		2		
Story1	B56	38	Beam	6.3333	2B-19	2B-19		2		
Story1	B57	30	Beam	1.9167	2B-2	2B-2		2		
Story1	B58	85	Beam	2.6667	2B-21	2B-21		2		
Story1	B59	25	Beam	15.8333	2B-11	2B-11		2		
Story1	B60	22	Beam	15.8333	2B-1	2B-1		2		
Story1	B61	29	Beam	14.8333	2B-3	2B-3		2		
Story1	B63	31	Beam	12.9167	2B-2	2B-2		2		
Story1	B64	28	Beam	12	2B-20	2B-20		2		
Story1	B65	26	Beam	25.6667	TB-2	TB-2		2		
Story1	B66	27	Beam	13.8333	2B-24	2B-24		2		

Table 3.2 - Frame Assignments - Summary (continued)

Story	Label	UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Max Station Spacing ft	Min Number Stations	Releases
Story1	C1	1	Column	14	C-11	C-11	90		3	
Story1	C2	62	Column	14	C-5	C-5			3	
Story1	C3	61	Column	14	C-19	C-19			3	
Story1	C4	2	Column	14	C-5	C-5			3	
Story1	C5	6	Column	14	C-10	C-10			3	
Story1	C7	37	Column	14	C-12	C-12			3	
Story1	C9	20	Column	14	HSS6X6X1/2	HSS6X6X1/2			3	
Story1	C10	36	Column	14	C-12	C-12			3	
Story1	C12	7	Column	14	C12X12	C12X12			3	Yes
Story1	C14	41	Column	14	HSS6X4X3/8	HSS6X4X3/8			3	
Story1	C15	42	Column	14	HSS4X4X5/16	HSS4X4X5/16			3	
Story1	C16	9	Column	14	C-5	C-5	90		3	
Story1	C17	10	Column	14	C-16	C-16			3	
Story1	C18	35	Column	14	C-14	C-14	90		3	
Story1	C22	12	Column	14	C-5	C-5	90		3	
Story1	C23	105	Column	3.6667	HSS4X4X5/16	HSS4X4X5/16			3	Yes
Story1	C24	103	Column	3.6667	HSS4X4X5/16	HSS4X4X5/16			3	Yes
Story1	C26	15	Column	14	C-5	C-5	90		3	
Story1	C27	104	Column	3.6667	HSS4X4X5/16	HSS4X4X5/16			3	Yes
Story1	C28	3	Column	14	C-16	C-16			3	
Story1	C30	34	Column	14	C-14	C-14	90		3	
Story1	C32	17	Column	14	C-5	C-5	90		3	
Story1	C33	18	Column	14	C-5	C-5	90		3	
Story1	C34	19	Column	14	HSS6X6X1/2	HSS6X6X1/2	90		3	
Story1	C38	33	Column	14	C-14	C-14	90		3	
Story1	C39	5	Column	14	C-15	C-15	90		3	
Story1	C40	32	Column	14	C-11	C-11	90		3	
Story1	C41	44	Column	14	C-15	C-15			3	
Story1	C42	24	Column	14	C-16	C-16	90		3	

3.3 Shell Assignments

Table 3.3 - Area Assignments - Summary

Story	Label	UniqueName	Section Property	Property Type
Upper-Roof	F11	67	Pywood	Slab
Upper-Roof	F20	77	Pywood	Slab
Upper-Roof	F21	41	Pywood	Slab
Upper-Roof	F29	37	Pywood	Slab
Upper-Roof	F40	78	Pywood	Slab
Upper-Roof	F41	71	Pywood	Slab
Upper-Roof	F42	7	Pywood	Slab
Upper-Roof	F55	76	Pywood	Slab
Upper-Roof	F63	69	Pywood	Slab

Table 3.3 - Area Assignments - Summary (continued)

Story	Label	UniqueName	Section Property	Property Type
Upper-Roof	F64	74	Pywood	Slab
Upper-Roof	F77	79	Pywood	Slab
Roof	F1	70	Slab8	Slab
Roof	F2	68	Slab8	Slab
Roof	F10	46	Pywood	Slab
Roof	F12	81	Slab8	Slab
Roof	F13	66	Slab8	Slab
Roof	F17	47	Pywood	Slab
Roof	F18	48	Pywood	Slab
Roof	F19	65	Slab8	Slab
Roof	F30	97	Slab8	Slab
Roof	F31	82	Slab8	Slab
Roof	F39	64	Slab8	Slab
Roof	F45	102	Slab8	Slab
Roof	F47	75	Slab8	Slab
Roof	F56	84	Slab8	Slab
Roof	F57	83	Slab8	Slab
Roof	F66	63	Slab8	Slab
Roof	F69	38	Pywood	Slab
Roof	F70	44	Pywood	Slab
Roof	F72	62	Slab8	Slab
Roof	F78	60	Slab8	Slab
Roof	F79	42	Pywood	Slab
Roof	F86	61	Slab8	Slab
Roof	W3	11	8CMU	Wall
Roof	W4	80	8CMU	Wall
Roof	W6	88	8CMU	Wall
Roof	W8	93	8CMU	Wall
Roof	W11	127	8CW	Wall
Roof	W12	105	8CMU	Wall
Roof	W13	106	8CMU	Wall
Roof	W14	107	8CMU	Wall
Roof	W16	126	8CW	Wall
Roof	W17	108	8CMU	Wall
Roof	W19	36	8CMU	Wall
Roof	W23	87	8CMU	Wall
Roof	W24	109	8CMU	Wall
Roof	W26	124	8CW	Wall
Roof	W28	125	8CW	Wall
Roof	W29	110	8CMU	Wall
Roof	W35	111	8CMU	Wall
Roof	W36	86	8CMU	Wall
Roof	W37	112	8CMU	Wall
Roof	W40	123	8CW	Wall
Roof	W42	122	8CW	Wall

Table 3.3 - Area Assignments - Summary (continued)

Story	Label	UniqueName	Section Property	Property Type
Roof	W47	40	8CMU	Wall
Roof	W50	89	8CW	Wall
Roof	W52	115	8CMU	Wall
Roof	W53	116	8CW	Wall
Roof	W54	114	8CMU	Wall
Roof	W56	90	8CW	Wall
Roof	W57	120	8CW	Wall
Roof	W60	117	8CW	Wall
Roof	W61	121	8CW	Wall
Roof	W67	95	8CW	Wall
Roof	W68	91	8CW	Wall
Roof	W69	96	8CW	Wall
Roof	W71	119	8CW	Wall
Roof	W74	118	8CW	Wall
Roof	W75	92	8CW	Wall
Roof	A1	72	None	Opening
Roof	A2	98	None	Opening
Roof	A5	103	None	Opening
Roof	A6	99	None	Opening
Roof	A7	85	None	Opening
Roof	A8	73	None	Opening
Story1	F16	29	Slab8	Slab
Story1	F27	30	Slab8	Slab
Story1	F36	130	Slab8	Slab
Story1	F44	34	Slab8	Slab
Story1	F46	32	Slab8	Slab
Story1	F49	131	Slab8	Slab
Story1	F60	26	Slab8	Slab
Story1	F74	25	Slab8	Slab
Story1	F76	4	Slab8	Slab
Story1	W1	1	8CMU	Wall
Story1	W2	2	8CMU	Wall
Story1	W5	3	8CMU	Wall
Story1	W7	5	8CMU	Wall
Story1	W9	49	8CW	Wall
Story1	W10	6	12CMU	Wall
Story1	W15	45	8CW	Wall
Story1	W17	50	8CW	Wall
Story1	W18	104	8CMU	Wall
Story1	W19	8	8CMU	Wall
Story1	W20	128	8CMU	Wall
Story1	W21	129	8CMU	Wall
Story1	W22	113	8CMU	Wall
Story1	W23	24	8CMU	Wall
Story1	W25	27	8CW	Wall

Table 3.3 - Area Assignments - Summary (continued)

Story	Label	UniqueName	Section Property	Property Type
Story1	W27	59	8CMU	Wall
Story1	W30	9	8CMU	Wall
Story1	W31	39	8CMU	Wall
Story1	W32	52	8CMU	Wall
Story1	W33	58	8CMU	Wall
Story1	W34	10	8CMU	Wall
Story1	W36	23	8CMU	Wall
Story1	W38	22	8CW	Wall
Story1	W39	57	8CMU	Wall
Story1	W41	94	8CMU	Wall
Story1	W43	100	8CMU	Wall
Story1	W44	101	8CMU	Wall
Story1	W45	35	8CMU	Wall
Story1	W46	51	8CMU	Wall
Story1	W47	12	8CMU	Wall
Story1	W48	31	8CMU	Wall
Story1	W49	56	8CMU	Wall
Story1	W51	13	8CMU	Wall
Story1	W55	14	8CMU	Wall
Story1	W58	55	8CMU	Wall
Story1	W59	15	8CMU	Wall
Story1	W62	43	8CMU	Wall
Story1	W63	53	8CMU	Wall
Story1	W64	54	8CMU	Wall
Story1	W65	16	8CMU	Wall
Story1	W66	21	8CW	Wall
Story1	W70	17	8CMU	Wall
Story1	W72	18	8CMU	Wall
Story1	W73	19	8CMU	Wall
Story1	W76	20	8CMU	Wall
Story1	A3	28	None	Opening
Story1	A4	33	None	Opening
Base	F3	141	Footing12	Slab
Base	F4	153	Footing12	Slab
Base	F5	150	Footing16	Slab
Base	F6	155	Footing12	Slab
Base	F7	151	Footing16	Slab
Base	F8	157	Footing12	Slab
Base	F9	158	Footing12	Slab
Base	F14	152	Footing12	Slab
Base	F15	160	Footing12	Slab
Base	F22	145	Footing16	Slab
Base	F23	139	Footing12	Slab
Base	F24	159	Footing16	Slab
Base	F25	137	Footing12	Slab

Table 3.3 - Area Assignments - Summary (continued)

Story	Label	UniqueName	Section Property	Property Type
Base	F26	140	Footing12	Slab
Base	F28	169	Footing12	Slab
Base	F32	177	Footing12	Slab
Base	F33	154	Footing12	Slab
Base	F34	161	Footing12	Slab
Base	F35	168	Footing12	Slab
Base	F37	144	Footing16	Slab
Base	F38	149	Footing16	Slab
Base	F43	163	Footing12	Slab
Base	F48	176	Footing12	Slab
Base	F50	138	Footing12	Slab
Base	F51	156	Footing12	Slab
Base	F52	143	Footing16	Slab
Base	F53	148	Footing16	Slab
Base	F54	162	Footing12	Slab
Base	F58	167	Footing12	Slab
Base	F59	174	Footing12	Slab
Base	F61	136	Footing12	Slab
Base	F62	164	Footing16	Slab
Base	F65	147	Footing16	Slab
Base	F67	142	Footing16	Slab
Base	F68	165	Footing12	Slab
Base	F71	135	Footing12	Slab
Base	F73	172	Footing12	Slab
Base	F75	166	Footing12	Slab
Base	F80	146	Footing16	Slab
Base	F81	132	Footing12	Slab
Base	F82	170	Footing12	Slab
Base	F83	133	Footing12	Slab
Base	F84	171	Footing12	Slab
Base	F85	134	Footing12	Slab

4 Loads

This chapter provides loading information as applied to the model.

4.1 Load Patterns

Table 4.1 - Load Pattern Definitions

Name	Is Auto Load	Type	Self Weight Multiplier	Auto Load
~LLRF	Yes	Other	0	
Dead	No	Dead	1	
Live	No	Live	0	
Wind	No	Wind	0	ASCE 7-16
Wind(1/12)	Yes	Wind	0	ASCE 7-16
Wind(10/12)	Yes	Wind	0	ASCE 7-16
Wind(11/12)	Yes	Wind	0	ASCE 7-16
Wind(12/12)	Yes	Wind	0	ASCE 7-16
Wind(2/12)	Yes	Wind	0	ASCE 7-16
Wind(3/12)	Yes	Wind	0	ASCE 7-16
Wind(4/12)	Yes	Wind	0	ASCE 7-16
Wind(5/12)	Yes	Wind	0	ASCE 7-16
Wind(6/12)	Yes	Wind	0	ASCE 7-16
Wind(7/12)	Yes	Wind	0	ASCE 7-16
Wind(8/12)	Yes	Wind	0	ASCE 7-16
Wind(9/12)	Yes	Wind	0	ASCE 7-16

4.2 Auto Wind Loading

Table 4.2 - Load Pattern Definitions - Auto Wind - ASCE 7-16 (Part 1 of 2)

Name	Is Auto Load	Exposure Source	Top Story	Bottom Story	Include Parapet	User Cp?	ASCE Case	e1 Ratio	e2 Ratio	Wind Speed mph	Exposure Type
Wind	No	Diaphragms	Upper-Roof	Base	No	No	Create All	0.15	0.15	175	C
Wind	No										
Wind(1/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	1	0	0	175	C
Wind(1/12)	Yes										
Wind(10/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	4	-0.15	-0.15	175	C
Wind(10/12)	Yes										
Wind(11/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	4	0.15	0.15	175	C
Wind(11/12)	Yes										
Wind(12/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	4	-0.15	-0.15	175	C
Wind(12/12)	Yes										
Wind(2/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	1	0	0	175	C
Wind(2/12)	Yes										
Wind(3/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	2	0.15	0	175	C
Wind(3/12)	Yes										
Wind(4/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	2	-0.15	0	175	C
Wind(4/12)	Yes										
Wind(5/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	2	0.15	0	175	C
Wind(5/12)	Yes										

Table 4.2 - Load Pattern Definitions - Auto Wind - ASCE 7-16 (Part 1 of 2, continued)

Name	Is Auto Load	Exposure Source	Top Story	Bottom Story	Include Parapet	User Cp?	ASCE Case	e1 Ratio	e2 Ratio	Wind Speed mph	Exposure Type
Wind(6/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	2	-0.15	0	175	C
Wind(6/12)	Yes										
Wind(7/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	3	0	0	175	C
Wind(7/12)	Yes										
Wind(8/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	3	0	0	175	C
Wind(8/12)	Yes										
Wind(9/12)	Yes	Diaphragms	Upper-Roof	Base	No	No	4	0.15	0.15	175	C
Wind(9/12)	Yes										

Table 4.2 - Load Pattern Definitions - Auto Wind - ASCE 7-16 (Part 2 of 2)

Name	Ground Elev Factor	kzt	Gust Factor	Kd	Width Type	Direction Angle deg	Story	Diaphragm	Width ft	Depth ft	X ft
Wind	1	1	0.85	0.85	Auto	0	Roof	D2	98.3229	60.8336	33.0832
Wind							Story1	D1	90.3229	68.3333	33.1667
Wind(1/12)	1	1	0.85	0.85	Auto	0	Roof	D2	98.3229	60.8336	33.0832
Wind(1/12)							Story1	D1	90.3229	68.3333	33.1667
Wind(10/12)	1	1	0.85	0.85	Auto	0	Roof	D2	98.3229	60.8336	33.0832
Wind(10/12)							Story1	D1	90.3229	68.3333	33.1667
Wind(11/12)	1	1	0.85	0.85	Auto	90	Roof	D2	60.8336	98.3229	33.0832
Wind(11/12)							Story1	D1	68.3333	90.3229	33.1667
Wind(12/12)	1	1	0.85	0.85	Auto	90	Roof	D2	60.8336	98.3229	33.0832
Wind(12/12)							Story1	D1	68.3333	90.3229	33.1667
Wind(2/12)	1	1	0.85	0.85	Auto	90	Roof	D2	60.8336	98.3229	33.0832
Wind(2/12)							Story1	D1	68.3333	90.3229	33.1667
Wind(3/12)	1	1	0.85	0.85	Auto	0	Roof	D2	98.3229	60.8336	33.0832
Wind(3/12)							Story1	D1	90.3229	68.3333	33.1667
Wind(4/12)	1	1	0.85	0.85	Auto	0	Roof	D2	98.3229	60.8336	33.0832
Wind(4/12)							Story1	D1	90.3229	68.3333	33.1667
Wind(5/12)	1	1	0.85	0.85	Auto	90	Roof	D2	60.8336	98.3229	33.0832
Wind(5/12)							Story1	D1	68.3333	90.3229	33.1667
Wind(6/12)	1	1	0.85	0.85	Auto	90	Roof	D2	60.8336	98.3229	33.0832
Wind(6/12)							Story1	D1	68.3333	90.3229	33.1667
Wind(7/12)	1	1	0.85	0.85	Auto	0	Roof	D2	98.3229	60.8336	33.0832
Wind(7/12)							Story1	D1	90.3229	68.3333	33.1667
Wind(8/12)	1	1	0.85	0.85	Auto	90	Roof	D2	60.8336	98.3229	33.0832
Wind(8/12)							Story1	D1	68.3333	90.3229	33.1667
Wind(9/12)	1	1	0.85	0.85	Auto	0	Roof	D2	98.3229	60.8336	33.0832
Wind(9/12)							Story1	D1	90.3229	68.3333	33.1667

ASCE 7-16 Auto Wind Load Calculation

This calculation presents the automatically generated lateral wind loads for load pattern Wind according to ASCE 7-16, as calculated by ETABS.

Exposure Parameters

Exposure From = Diaphragms

Exposure Category = C

Wind Direction = 0 degrees

Basic Wind Speed, V [ASCE 26.5.1]	$V = 175\ mph$
Windward Coefficient, $C_{p,wind}$ [ASCE 27.4.1]	$C_{p,wind}$ =Varies
Leeward Coefficient, $C_{p,lee}$ [ASCE 27.4.1]	$C_{p,lee}$ =Varies

Wind Case = All Cases

Top Story = Upper-Roof

Bottom Story = Base

Include Parapet = No

Factors and Coefficients

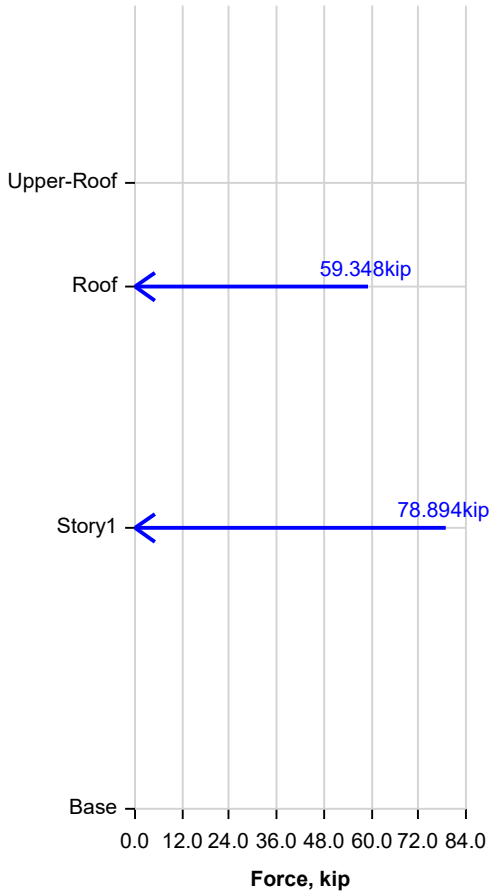
Gradient Height, z_g [ASCE Table 26.9-1]		$z_g = 900$
Emperical Exponent, α [ASCE Table 26.9-1]		$\alpha = 9.5$
Velocity Pressure Exposure Coefficient, K_z; [ASCE Table 27.3-1]	$K_z = 2.01 \left(\frac{z}{z_g}\right)^{\frac{2}{\alpha}}$ for $15ft \le z \le z_g$ $K_z = 2.01 \left(\frac{15}{z_g}\right)^{\frac{2}{\alpha}}$ for $z < 15ft$	
Topographical Factor, K_{zt} [ASCE 26.8.2]		$K_{zt} = 1$
Directionality Factor, K_d [ASCE 26.6]		$K_d = 0.85$
Gust Effect Factor, G [ASCE 26.9]		$G = 0.85$

Lateral Loading

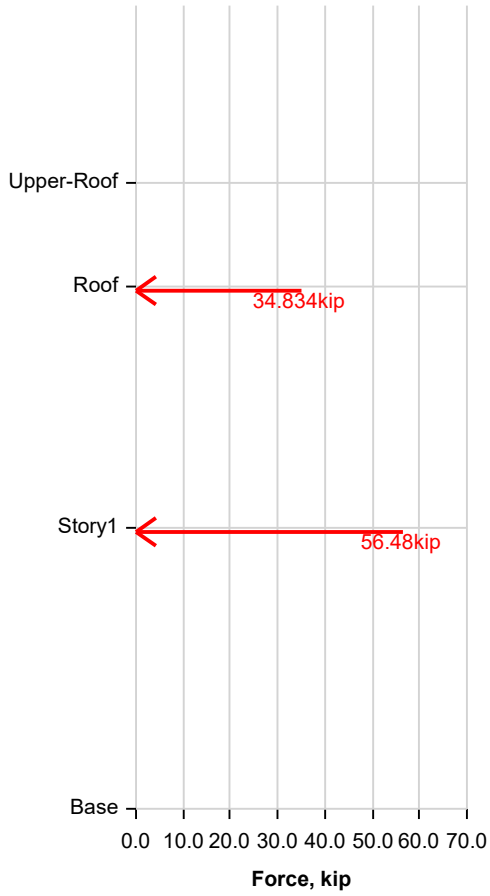
Velocity Pressure, q_z [ASCE 27.3.2 Eq. 27.3-1]	$q_z = 0.00256\ K_z K_{zt} K_d V^2$
Design Wind Pressure, p [ASCE 27.4.2 Eq. 27.4-2]	$p = qG\ C_{p,wind} + q_h\ (G\ C_{p,lee})$

Applied Story Forces

Lateral Load to Stories - 0°

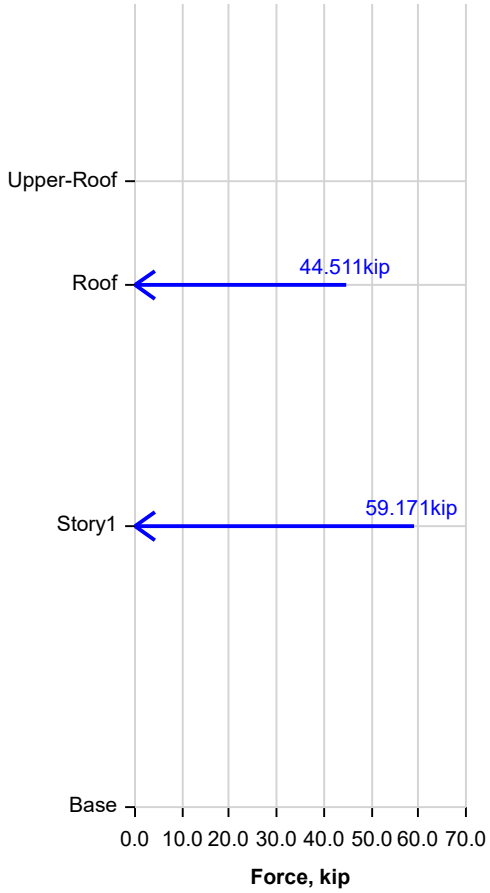


Lateral Load to Stories - 90°



Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	59.348	0
Story1	14	78.894	0
Base	0	0	0

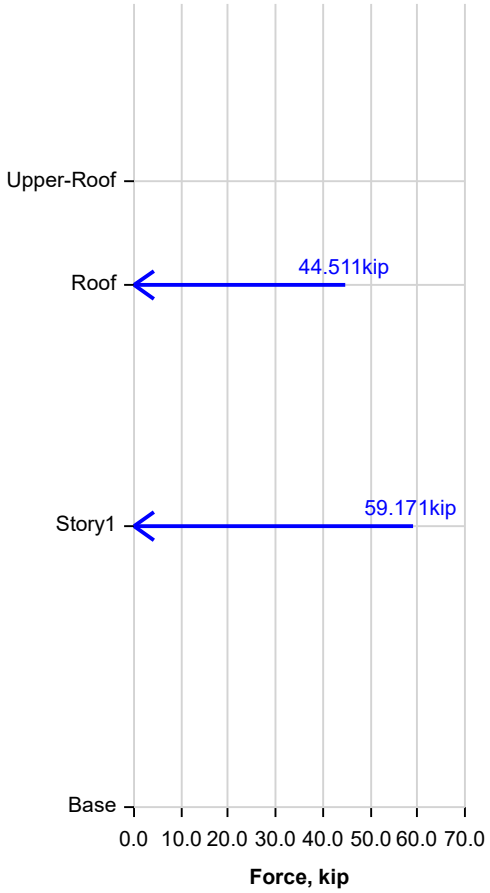
Lateral Load to Stories - 0°



Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	44.511	0
Story1	14	59.171	0
Base	0	0	0

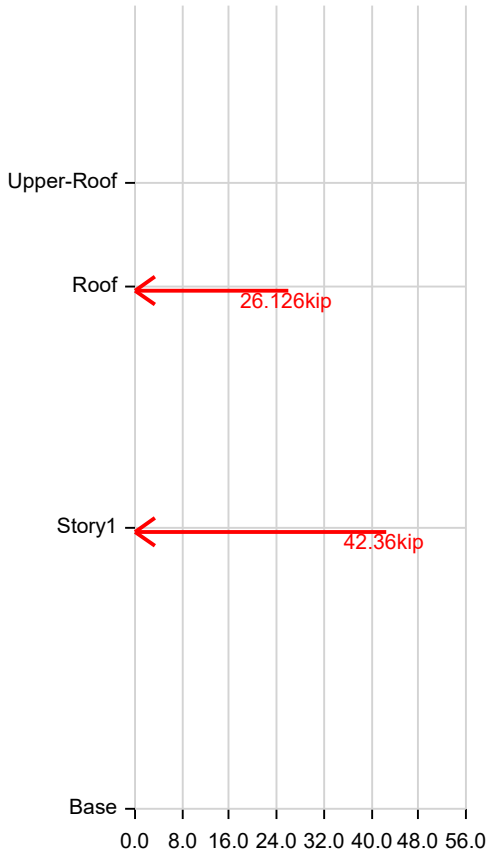
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	0	34.834
Story1	14	0	56.48
Base	0	0	0

Lateral Load to Stories - 0°



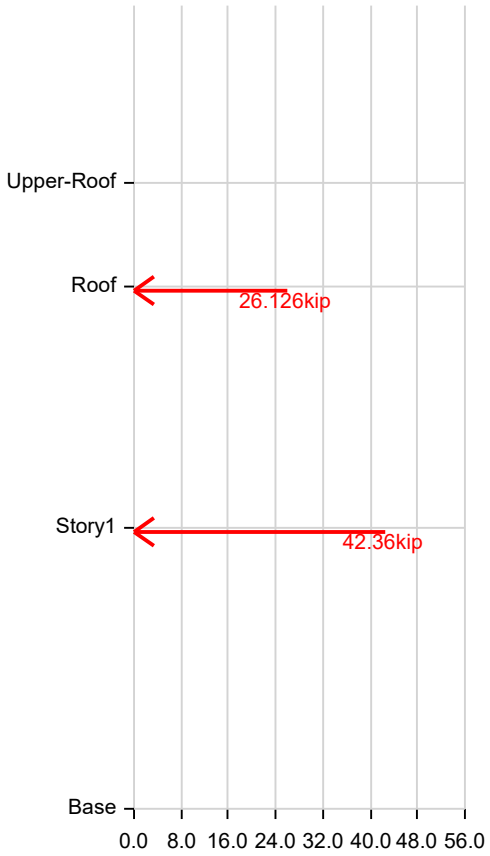
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	44.511	0
Story1	14	59.171	0
Base	0	0	0

Lateral Load to Stories - 90°



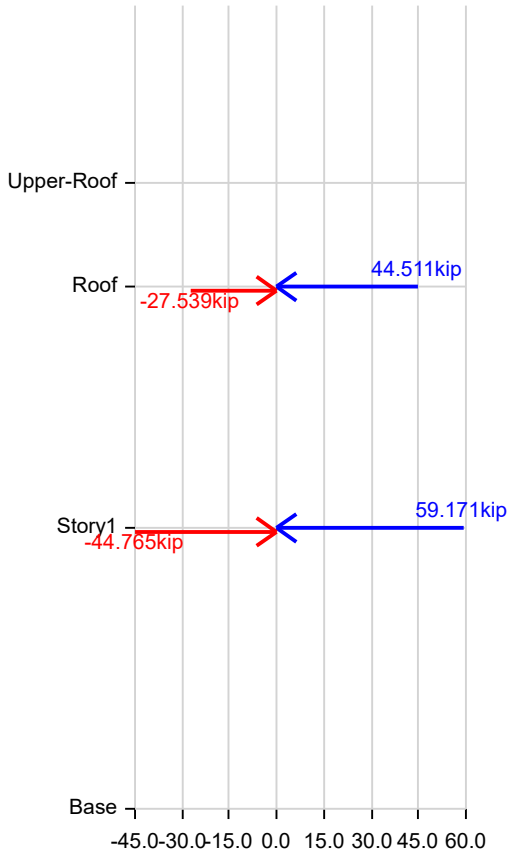
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	0	26.126
Story1	14	0	42.36
Base	0	0	0

Lateral Load to Stories - 90°



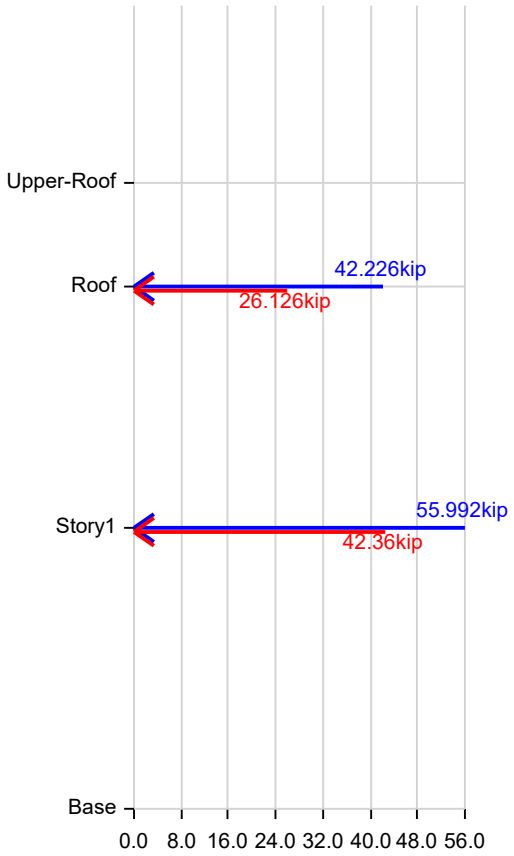
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	0	26.126
Story1	14	0	42.36
Base	0	0	0

Lateral Load to Stories - 0°



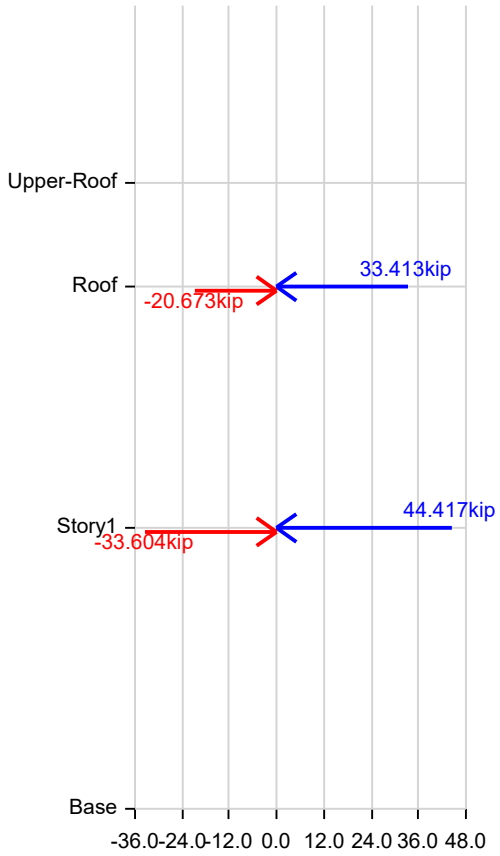
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	44.511	-27.539
Story1	14	59.171	-44.765
Base	0	0	0

Lateral Load to Stories - 90°



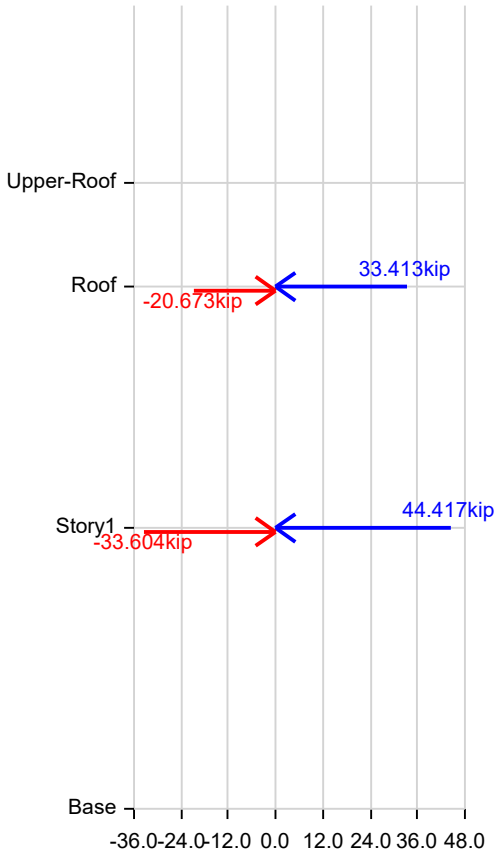
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	42.226	26.126
Story1	14	55.992	42.36
Base	0	0	0

Lateral Load to Stories - 0°



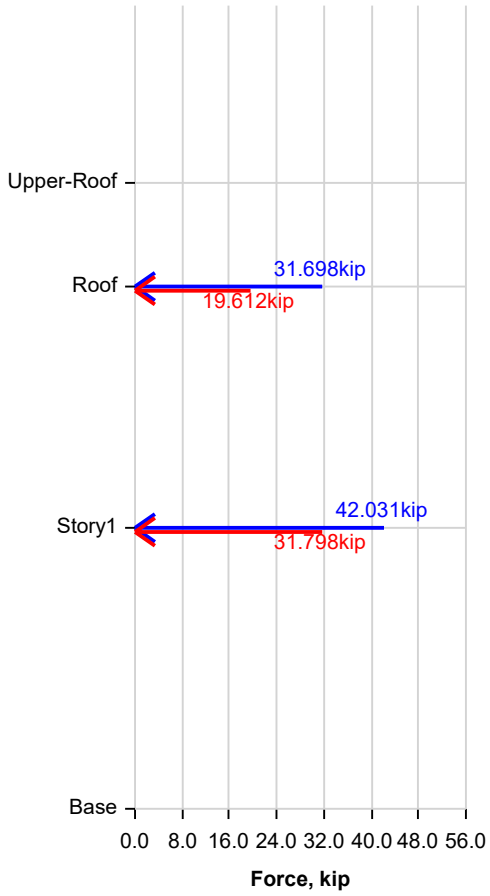
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	33.413	-20.673
Story1	14	44.417	-33.604
Base	0	0	0

Lateral Load to Stories - 0°



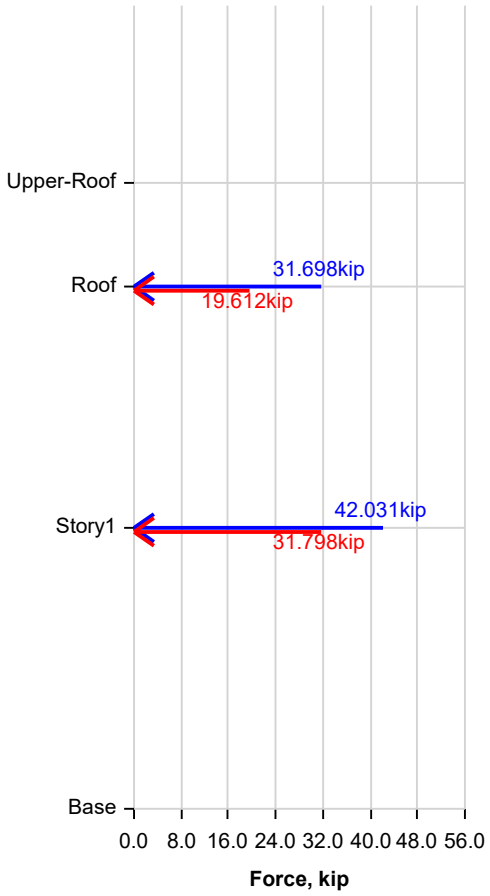
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	33.413	-20.673
Story1	14	44.417	-33.604
Base	0	0	0

Lateral Load to Stories - 90°



Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	31.698	19.612
Story1	14	42.031	31.798
Base	0	0	0

Lateral Load to Stories - 90°



Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Upper-Roof	31.1667	0	0
Roof	26	31.698	19.612
Story1	14	42.031	31.798
Base	0	0	0

4.3 Applied Loads

4.3.1 Point Loads

Table 4.4 - Joint Loads Assignments - Force

Story	Label	UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
Roof	190	125	Wind(1/12)	59.348	0	0	0	0	0	0	0
Story1	203	130	Wind(1/12)	78.894	0	0	0	0	0	0	0
Roof	394	153	Wind(2/12)	0	34.834	0	0	0	0	0	0
Story1	395	161	Wind(2/12)	0	56.48	0	0	0	0	0	0
Roof	396	207	Wind(3/12)	44.511	0	0	0	0	656.4636	0	0
Story1	397	208	Wind(3/12)	59.171	0	0	0	0	801.6703	0	0
Roof	398	209	Wind(4/12)	44.511	0	0	0	0	-656.4636	0	0
Story1	399	212	Wind(4/12)	59.171	0	0	0	0	-801.6703	0	0
Roof	400	215	Wind(5/12)	0	26.126	0	0	0	238.398	0	0
Story1	401	219	Wind(5/12)	0	42.36	0	0	0	434.1925	0	0
Roof	402	253	Wind(6/12)	0	26.126	0	0	0	-238.398	0	0
Story1	403	254	Wind(6/12)	0	42.36	0	0	0	-434.1925	0	0
Roof	404	255	Wind(7/12)	44.511	-27.539	0	0	0	0	0	0
Story1	405	273	Wind(7/12)	59.171	-44.765	0	0	0	0	0	0
Roof	406	274	Wind(8/12)	42.226	26.126	0	0	0	0	0	0
Story1	407	287	Wind(8/12)	55.992	42.36	0	0	0	0	0	0
Roof	408	296	Wind(9/12)	33.413	-20.673	0	0	0	681.426	0	0
Story1	409	298	Wind(9/12)	44.417	-33.604	0	0	0	946.2259	0	0
Roof	410	299	Wind(10/12)	33.413	-20.673	0	0	0	-681.426	0	0
Story1	411	300	Wind(10/12)	44.417	-33.604	0	0	0	-946.2259	0	0
Roof	412	301	Wind(11/12)	31.698	19.612	0	0	0	646.4471	0	0
Story1	413	302	Wind(11/12)	42.031	31.798	0	0	0	895.39	0	0
Roof	414	303	Wind(12/12)	31.698	19.612	0	0	0	-646.4471	0	0
Story1	415	426	Wind(12/12)	42.031	31.798	0	0	0	-895.39	0	0

4.3.2 Area Loads

Table 4.5 - Area Load Assignments - Uniform

Story	Label	UniqueName	Load Pattern	Direction	Load lb/ft2
Upper-Roof	F11	67	Dead	Gravity	25
Upper-Roof	F20	77	Dead	Gravity	25
Upper-Roof	F21	41	Dead	Gravity	25
Upper-Roof	F29	37	Dead	Gravity	25
Upper-Roof	F40	78	Dead	Gravity	25
Upper-Roof	F41	71	Dead	Gravity	25
Upper-Roof	F42	7	Dead	Gravity	25
Upper-Roof	F55	76	Dead	Gravity	25
Upper-Roof	F63	69	Dead	Gravity	25
Upper-Roof	F64	74	Dead	Gravity	25
Upper-Roof	F77	79	Dead	Gravity	25
Roof	F1	70	Dead	Gravity	25

Table 4.5 - Area Load Assignments - Uniform (continued)

Story	Label	UniqueName	Load Pattern	Direction	Load lb/ft2
Roof	F2	68	Dead	Gravity	25
Roof	F10	46	Dead	Gravity	25
Roof	F12	81	Dead	Gravity	25
Roof	F13	66	Dead	Gravity	25
Roof	F17	47	Dead	Gravity	25
Roof	F18	48	Dead	Gravity	25
Roof	F19	65	Dead	Gravity	25
Roof	F30	97	Dead	Gravity	25
Roof	F31	82	Dead	Gravity	25
Roof	F39	64	Dead	Gravity	25
Roof	F45	102	Dead	Gravity	25
Roof	F47	75	Dead	Gravity	25
Roof	F56	84	Dead	Gravity	25
Roof	F57	83	Dead	Gravity	25
Roof	F66	63	Dead	Gravity	25
Roof	F69	38	Dead	Gravity	25
Roof	F70	44	Dead	Gravity	25
Roof	F72	62	Dead	Gravity	25
Roof	F78	60	Dead	Gravity	25
Roof	F79	42	Dead	Gravity	25
Roof	F86	61	Dead	Gravity	25
Story1	F16	29	Dead	Gravity	235
Story1	F27	30	Dead	Gravity	15
Story1	F36	130	Dead	Gravity	25
Story1	F44	34	Dead	Gravity	25
Story1	F46	32	Dead	Gravity	35
Story1	F49	131	Dead	Gravity	25
Story1	F60	26	Dead	Gravity	15
Story1	F74	25	Dead	Gravity	235
Story1	F76	4	Dead	Gravity	25
Upper-Roof	F11	67	Live	Gravity	30
Upper-Roof	F20	77	Live	Gravity	30
Upper-Roof	F21	41	Live	Gravity	30
Upper-Roof	F29	37	Live	Gravity	30
Upper-Roof	F40	78	Live	Gravity	30
Upper-Roof	F41	71	Live	Gravity	30
Upper-Roof	F42	7	Live	Gravity	30
Upper-Roof	F55	76	Live	Gravity	30
Upper-Roof	F63	69	Live	Gravity	30
Upper-Roof	F64	74	Live	Gravity	30
Upper-Roof	F77	79	Live	Gravity	30
Roof	F1	70	Live	Gravity	30
Roof	F2	68	Live	Gravity	30
Roof	F10	46	Live	Gravity	30
Roof	F12	81	Live	Gravity	30

Table 4.5 - Area Load Assignments - Uniform (continued)

Story	Label	UniqueName	Load Pattern	Direction	Load lb/ft2
Roof	F13	66	Live	Gravity	30
Roof	F17	47	Live	Gravity	30
Roof	F18	48	Live	Gravity	30
Roof	F19	65	Live	Gravity	30
Roof	F30	97	Live	Gravity	30
Roof	F31	82	Live	Gravity	30
Roof	F39	64	Live	Gravity	30
Roof	F45	102	Live	Gravity	30
Roof	F47	75	Live	Gravity	30
Roof	F56	84	Live	Gravity	30
Roof	F57	83	Live	Gravity	30
Roof	F66	63	Live	Gravity	30
Roof	F69	38	Live	Gravity	30
Roof	F70	44	Live	Gravity	30
Roof	F72	62	Live	Gravity	30
Roof	F78	60	Live	Gravity	30
Roof	F79	42	Live	Gravity	30
Roof	F86	61	Live	Gravity	30
Story1	F16	29	Live	Gravity	30
Story1	F27	30	Live	Gravity	60
Story1	F36	130	Live	Gravity	30
Story1	F44	34	Live	Gravity	30
Story1	F46	32	Live	Gravity	40
Story1	F49	131	Live	Gravity	30
Story1	F60	26	Live	Gravity	60
Story1	F74	25	Live	Gravity	30
Story1	F76	4	Live	Gravity	30

4.4 Load Cases

Table 4.6 - Load Case Definitions - Summary

Name	Type
Dead	Linear Static
Live	Linear Static
Modal	Modal - Eigen
Wind	Linear Static

4.5 Load Combinations

Table 4.7 - Load Combination Definitions

Name	Type	Is Auto	Load Name	SF	Notes
Comb1	Linear Add	No	Dead	1	
Comb1			Live	1	
Comb2	Linear Add	No	Dead	1	
Comb2			Live	0.75	

Table 4.7 - Load Combination Definitions (continued)

Name	Type	Is Auto	Load Name	SF	Notes
Comb3	Linear Add	No	Dead	0.6	
Comb4	Linear Add	No	Dead	1	
Comb5	Linear Add	No	Dead	1	
Comb6	Linear Add	No	Dead	1	
Comb6			Live	0.75	
Comb7	Linear Add	No	Dead	0.6	
DCmpC1	Linear Add	Yes	Dead	1.4	Dead [Construction]
DCmpC2	Linear Add	Yes	Dead	1.2	Dead + Construction Live [Construction]
DCmpD1	Linear Add	Yes	Dead	1	Dead [Deflections]
DCmpD2	Linear Add	Yes	Dead	1	Dead + Live [Deflections]
DCmpD2			Live	1	
DCmpS1	Linear Add	Yes	Dead	1.4	Dead [Strength]
DCmpS2	Linear Add	Yes	Dead	1.2	Dead + Live [Strength]
DCmpS2			Live	1.6	
DConS1	Linear Add	Yes	Dead	1.4	Dead [Strength]
DConS2	Linear Add	Yes	Dead	1.2	Dead + Live [Strength]
DConS2			Live	1.6	
DConS3	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS3			Live	1	
DConS3			Wind	1	
DConS4	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS4			Live	1	
DConS4			Wind	-1	
DConS5	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS5			Wind	1	
DConS6	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS6			Wind	-1	
DSlbU1	Linear Add	Yes	Dead	1.4	
DSlbU2	Linear Add	Yes	Dead	1.2	
DSlbU2			Live	1.6	
DSlbU3	Linear Add	Yes	Dead	1.2	
DSlbU3			Live	1	
DSlbU4	Linear Add	Yes	Dead	1.2	
DSlbU4			Live	1	
DSlbU5	Linear Add	Yes	Dead	0.9	
DSlbU6	Linear Add	Yes	Dead	0.9	
DStlD1	Linear Add	Yes	Dead	1	Dead [Deflections]
DStlD2	Linear Add	Yes	Dead	1	Dead + Live [Deflections]
DStlD2			Live	1	
DStlS1	Linear Add	Yes	Dead	1.4	Dead [Strength]
DStlS2	Linear Add	Yes	Dead	1.2	Dead + Live [Strength]
DStlS2			Live	1.6	
DStlS3	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DStlS3			Live	0.5	
DStlS3			Wind	1.3	

Table 4.7 - Load Combination Definitions (continued)

Name	Type	Is Auto	Load Name	SF	Notes
DStlS4	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DStlS4			Live	0.5	
DStlS4			Wind	-1.3	
DStlS5	Linear Add	Yes	Dead	1.2	Dead + Wind [Strength]
DStlS5			Wind	1.3	
DStlS6	Linear Add	Yes	Dead	1.2	Dead - Wind [Strength]
DStlS6			Wind	-1.3	
DStlS7	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DStlS7			Wind	1.3	
DStlS8	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DStlS8			Wind	-1.3	

5 Analysis Results

This chapter provides analysis results.

5.1 Story Results

Table 5.1 - Story Max Over Avg Displacements

Story	Output Case	Case Type	Step Type	Direction	Maximum in	Average in	Ratio
Roof	Dead	LinStatic		X	0.005821	0.003509	1.659
Roof	Dead	LinStatic		Y	0.005894	0.004663	1.264
Story1	Dead	LinStatic		Y	0.002227	0.001499	1.485
Roof	Live	LinStatic		X	0.00118	0.000627	1.882
Roof	Live	LinStatic		Y	0.001449	0.001155	1.255
Story1	Live	LinStatic		X	0.000277	5.8E-05	4.808
Story1	Live	LinStatic		Y	0.000424	0.000281	1.51
Roof	Wind	LinStatic	Max	X	0.01355	0.011872	1.141
Roof	Wind	LinStatic	Max	Y	0.029811	0.029081	1.025
Story1	Wind	LinStatic	Max	X	0.007559	0.006945	1.088
Story1	Wind	LinStatic	Max	Y	0.018166	0.017792	1.021
Roof	Wind	LinStatic	Min	Y	0.024434	0.023427	1.043
Story1	Wind	LinStatic	Min	Y	0.014667	0.014296	1.026
Roof	DSlbU1	Combination		X	0.00815	0.004913	1.659
Roof	DSlbU1	Combination		Y	0.008252	0.006528	1.264
Story1	DSlbU1	Combination		Y	0.003118	0.002099	1.485
Roof	DSlbU2	Combination		X	0.008874	0.005214	1.702
Roof	DSlbU2	Combination		Y	0.009392	0.007443	1.262
Story1	DSlbU2	Combination		Y	0.003351	0.002249	1.49
Roof	DSlbU3	Combination		X	0.008166	0.004838	1.688
Roof	DSlbU3	Combination		Y	0.008522	0.00675	1.262
Story1	DSlbU3	Combination		Y	0.003097	0.002081	1.488
Roof	DSlbU4	Combination		X	0.008166	0.004838	1.688
Roof	DSlbU4	Combination		Y	0.008522	0.00675	1.262
Story1	DSlbU4	Combination		Y	0.003097	0.002081	1.488
Roof	DSlbU5	Combination		X	0.005239	0.003158	1.659
Roof	DSlbU5	Combination		Y	0.005305	0.004197	1.264
Story1	DSlbU5	Combination		Y	0.002004	0.00135	1.485
Roof	DSlbU6	Combination		X	0.005239	0.003158	1.659
Roof	DSlbU6	Combination		Y	0.005305	0.004197	1.264
Story1	DSlbU6	Combination		Y	0.002004	0.00135	1.485
Roof	Comb1	Combination		X	0.007002	0.004136	1.693
Roof	Comb1	Combination		Y	0.007343	0.005818	1.262
Story1	Comb1	Combination		Y	0.002651	0.001781	1.489
Roof	Comb2	Combination		X	0.006707	0.003979	1.685
Roof	Comb2	Combination		Y	0.006981	0.005529	1.263
Story1	Comb2	Combination		Y	0.002545	0.00171	1.488
Roof	Comb3	Combination		X	0.003493	0.002105	1.659
Roof	Comb3	Combination		Y	0.003536	0.002798	1.264
Story1	Comb3	Combination		Y	0.001336	0.0009	1.485
Roof	Comb4	Combination		X	0.005821	0.003509	1.659

Table 5.1 - Story Max Over Avg Displacements (continued)

Story	Output Case	Case Type	Step Type	Direction	Maximum in	Average in	Ratio
Roof	Comb4	Combination		Y	0.005894	0.004663	1.264
Story1	Comb4	Combination		Y	0.002227	0.001499	1.485
Roof	Comb5	Combination		X	0.005821	0.003509	1.659
Roof	Comb5	Combination		Y	0.005894	0.004663	1.264
Story1	Comb5	Combination		Y	0.002227	0.001499	1.485
Roof	Comb6	Combination		X	0.006707	0.003979	1.685
Roof	Comb6	Combination		Y	0.006981	0.005529	1.263
Story1	Comb6	Combination		Y	0.002545	0.00171	1.488
Roof	Comb7	Combination		X	0.003493	0.002105	1.659
Roof	Comb7	Combination		Y	0.003536	0.002798	1.264
Story1	Comb7	Combination		Y	0.001336	0.0009	1.485
Roof	DConS1	Combination		X	0.00815	0.004913	1.659
Roof	DConS1	Combination		Y	0.008252	0.006528	1.264
Story1	DConS1	Combination		Y	0.003118	0.002099	1.485
Roof	DConS2	Combination		X	0.008874	0.005214	1.702
Roof	DConS2	Combination		Y	0.009392	0.007443	1.262
Story1	DConS2	Combination		Y	0.003351	0.002249	1.49
Roof	DConS3	Combination	Max	X	0.01204	0.007574	1.59
Roof	DConS3	Combination	Max	Y	0.023373	0.022331	1.047
Story1	DConS3	Combination	Max	X	0.009041	0.007138	1.266
Story1	DConS3	Combination	Max	Y	0.016354	0.015712	1.041
Roof	DConS3	Combination	Min	X	0.009077	0.006902	1.315
Roof	DConS3	Combination	Min	Y	0.032956	0.030177	1.092
Story1	DConS3	Combination	Min	Y	0.017764	0.016377	1.085
Roof	DConS4	Combination	Max	X	0.007255	0.002774	2.615
Roof	DConS4	Combination	Max	Y	0.017441	0.016676	1.046
Story1	DConS4	Combination	Max	X	0.003252	0.001229	2.646
Story1	DConS4	Combination	Max	Y	0.012861	0.012216	1.053
Roof	DConS4	Combination	Min	X	0.019476	0.016937	1.15
Roof	DConS4	Combination	Min	Y	0.038333	0.035831	1.07
Story1	DConS4	Combination	Min	X	0.008798	0.007228	1.217
Story1	DConS4	Combination	Min	Y	0.021262	0.019873	1.07
Roof	DConS5	Combination	Max	X	0.012473	0.009061	1.377
Roof	DConS5	Combination	Max	Y	0.025263	0.024884	1.015
Story1	DConS5	Combination	Max	X	0.008462	0.00702	1.205
Story1	DConS5	Combination	Max	Y	0.016724	0.016443	1.017
Roof	DConS5	Combination	Min	X	0.00615	0.004905	1.254
Roof	DConS5	Combination	Min	Y	0.029739	0.027623	1.077
Story1	DConS5	Combination	Min	Y	0.016671	0.015646	1.066
Roof	DConS6	Combination	Max	Y	0.019331	0.01923	1.005
Story1	DConS6	Combination	Max	Y	0.01323	0.012947	1.022
Roof	DConS6	Combination	Min	X	0.016549	0.015009	1.103
Roof	DConS6	Combination	Min	Y	0.035115	0.033278	1.055
Story1	DConS6	Combination	Min	X	0.008268	0.007147	1.157
Story1	DConS6	Combination	Min	Y	0.02017	0.019142	1.054

Table 5.1 - Story Max Over Avg Displacements (continued)

Story	Output Case	Case Type	Step Type	Direction	Maximum in	Average in	Ratio
Roof	DCmpD1	Combination		X	0.005821	0.003509	1.659
Roof	DCmpD1	Combination		Y	0.005894	0.004663	1.264
Story1	DCmpD1	Combination		Y	0.002227	0.001499	1.485
Roof	DCmpD2	Combination		X	0.007002	0.004136	1.693
Roof	DCmpD2	Combination		Y	0.007343	0.005818	1.262
Story1	DCmpD2	Combination		Y	0.002651	0.001781	1.489
Roof	DCmpS1	Combination		X	0.00815	0.004913	1.659
Roof	DCmpS1	Combination		Y	0.008252	0.006528	1.264
Story1	DCmpS1	Combination		Y	0.003118	0.002099	1.485
Roof	DCmpS2	Combination		X	0.008874	0.005214	1.702
Roof	DCmpS2	Combination		Y	0.009392	0.007443	1.262
Story1	DCmpS2	Combination		Y	0.003351	0.002249	1.49
Roof	DCmpC1	Combination		X	0.00815	0.004913	1.659
Roof	DCmpC1	Combination		Y	0.008252	0.006528	1.264
Story1	DCmpC1	Combination		Y	0.003118	0.002099	1.485
Roof	DCmpC2	Combination		X	0.006986	0.004211	1.659
Roof	DCmpC2	Combination		Y	0.007073	0.005596	1.264
Story1	DCmpC2	Combination		Y	0.002672	0.001799	1.485
Roof	DStlS1	Combination		X	0.00815	0.004913	1.659
Roof	DStlS1	Combination		Y	0.008252	0.006528	1.264
Story1	DStlS1	Combination		Y	0.003118	0.002099	1.485
Roof	DStlS2	Combination		X	0.008874	0.005214	1.702
Roof	DStlS2	Combination		Y	0.009392	0.007443	1.262
Story1	DStlS2	Combination		Y	0.003351	0.002249	1.49
Roof	DStlS3	Combination	Max	X	0.016142	0.011414	1.414
Roof	DStlS3	Combination	Max	Y	0.032308	0.031632	1.021
Story1	DStlS3	Combination	Max	X	0.01117	0.009176	1.217
Story1	DStlS3	Combination	Max	Y	0.021649	0.02119	1.022
Roof	DStlS3	Combination	Min	X	0.00876	0.006944	1.262
Roof	DStlS3	Combination	Min	Y	0.039562	0.036628	1.08
Story1	DStlS3	Combination	Min	Y	0.021952	0.020525	1.07
Roof	DStlS4	Combination	Max	Y	0.024597	0.024282	1.013
Story1	DStlS4	Combination	Max	Y	0.017107	0.016645	1.028
Roof	DStlS4	Combination	Min	X	0.022278	0.020001	1.114
Roof	DStlS4	Combination	Min	Y	0.046552	0.043978	1.059
Story1	DStlS4	Combination	Min	X	0.010867	0.009293	1.169
Story1	DStlS4	Combination	Min	Y	0.0265	0.02507	1.057
Roof	DStlS5	Combination	Max	X	0.016179	0.011684	1.385
Roof	DStlS5	Combination	Max	Y	0.032738	0.03221	1.016
Story1	DStlS5	Combination	Max	X	0.011031	0.009129	1.208
Story1	DStlS5	Combination	Max	Y	0.021718	0.02133	1.018
Roof	DStlS5	Combination	Min	X	0.008169	0.006512	1.255
Roof	DStlS5	Combination	Min	Y	0.038837	0.03605	1.077
Story1	DStlS5	Combination	Min	Y	0.02174	0.020384	1.066
Roof	DStlS6	Combination	Max	Y	0.025027	0.024859	1.007

Table 5.1 - Story Max Over Avg Displacements (continued)

Story	Output Case	Case Type	Step Type	Direction	Maximum in	Average in	Ratio
Story1	DStlS6	Combination	Max	Y	0.017176	0.016786	1.023
Roof	DStlS6	Combination	Min	X	0.021688	0.019631	1.105
Roof	DStlS6	Combination	Min	Y	0.045827	0.043401	1.056
Story1	DStlS6	Combination	Min	X	0.010786	0.009301	1.16
Story1	DStlS6	Combination	Min	Y	0.026288	0.024929	1.055
Roof	DStlS7	Combination	Max	X	0.016538	0.012627	1.31
Roof	DStlS7	Combination	Max	Y	0.033768	0.033609	1.005
Story1	DStlS7	Combination	Max	X	0.01073	0.009106	1.178
Story1	DStlS7	Combination	Max	Y	0.021949	0.02178	1.008
Roof	DStlS7	Combination	Min	X	0.006423	0.005107	1.258
Roof	DStlS7	Combination	Min	Y	0.037069	0.034651	1.07
Story1	DStlS7	Combination	Min	Y	0.021071	0.019934	1.057
Roof	DStlS8	Combination	Max	Y	0.02646	0.026258	1.008
Story1	DStlS8	Combination	Max	Y	0.017408	0.017235	1.01
Roof	DStlS8	Combination	Min	X	0.019942	0.018437	1.082
Roof	DStlS8	Combination	Min	Y	0.044059	0.042002	1.049
Story1	DStlS8	Combination	Min	X	0.010417	0.0092	1.132
Story1	DStlS8	Combination	Min	Y	0.02562	0.024479	1.047
Roof	DStlD1	Combination		X	0.005821	0.003509	1.659
Roof	DStlD1	Combination		Y	0.005894	0.004663	1.264
Story1	DStlD1	Combination		Y	0.002227	0.001499	1.485
Roof	DStlD2	Combination		X	0.007002	0.004136	1.693
Roof	DStlD2	Combination		Y	0.007343	0.005818	1.262
Story1	DStlD2	Combination		Y	0.002651	0.001781	1.489

Table 5.2 - Story Drifts

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X ft	Y ft	Z ft
Roof	Dead	LinStatic		X	3.2E-05	357	17.6667	87.6563	26
Roof	Dead	LinStatic		Y	2.7E-05	297	9.6667	72.8229	26
Roof	Live	LinStatic		X	7E-06	357	17.6667	87.6563	26
Roof	Live	LinStatic		Y	7E-06	297	9.6667	72.8229	26
Roof	Wind	LinStatic	Max	X	4.2E-05	33	32.25	0	26
Roof	Wind	LinStatic	Max	Y	8.2E-05	297	9.6667	72.8229	26
Roof	Wind	LinStatic	Min	Y	6.9E-05	297	9.6667	72.8229	26
Roof	DSlbU1	Combination		X	4.5E-05	357	17.6667	87.6563	26
Roof	DSlbU1	Combination		Y	3.8E-05	297	9.6667	72.8229	26
Roof	DSlbU2	Combination		X	5E-05	357	17.6667	87.6563	26
Roof	DSlbU2	Combination		Y	4.4E-05	297	9.6667	72.8229	26
Roof	DSlbU3	Combination		X	4.5E-05	357	17.6667	87.6563	26
Roof	DSlbU3	Combination		Y	4E-05	297	9.6667	72.8229	26
Roof	DSlbU4	Combination		X	4.5E-05	357	17.6667	87.6563	26
Roof	DSlbU4	Combination		Y	4E-05	297	9.6667	72.8229	26
Roof	DSlbU5	Combination		X	2.9E-05	357	17.6667	87.6563	26
Roof	DSlbU5	Combination		Y	2.4E-05	297	9.6667	72.8229	26

Table 5.2 - Story Drifts (continued)

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X ft	Y ft	Z ft
Roof	DSlbU6	Combination		X	2.9E-05	357	17.6667	87.6563	26
Roof	DSlbU6	Combination		Y	2.4E-05	297	9.6667	72.8229	26
Roof	Comb1	Combination		X	3.9E-05	357	17.6667	87.6563	26
Roof	Comb1	Combination		Y	3.4E-05	297	9.6667	72.8229	26
Roof	Comb2	Combination		X	3.7E-05	357	17.6667	87.6563	26
Roof	Comb2	Combination		Y	3.2E-05	297	9.6667	72.8229	26
Roof	Comb3	Combination		X	1.9E-05	357	17.6667	87.6563	26
Roof	Comb3	Combination		Y	1.6E-05	297	9.6667	72.8229	26
Roof	Comb4	Combination		X	3.2E-05	357	17.6667	87.6563	26
Roof	Comb4	Combination		Y	2.7E-05	297	9.6667	72.8229	26
Roof	Comb5	Combination		X	3.2E-05	357	17.6667	87.6563	26
Roof	Comb5	Combination		Y	2.7E-05	297	9.6667	72.8229	26
Roof	Comb6	Combination		X	3.7E-05	357	17.6667	87.6563	26
Roof	Comb6	Combination		Y	3.2E-05	297	9.6667	72.8229	26
Roof	Comb7	Combination		X	1.9E-05	357	17.6667	87.6563	26
Roof	Comb7	Combination		Y	1.6E-05	297	9.6667	72.8229	26
Roof	DConS1	Combination		X	4.5E-05	357	17.6667	87.6563	26
Roof	DConS1	Combination		Y	3.8E-05	297	9.6667	72.8229	26
Roof	DConS2	Combination		X	5E-05	357	17.6667	87.6563	26
Roof	DConS2	Combination		Y	4.4E-05	297	9.6667	72.8229	26
Roof	DConS3	Combination	Max	Y	4.9E-05	169	56.3333	37.4896	26
Roof	DConS3	Combination	Min	X	4.6E-05	357	17.6667	87.6563	26
Roof	DConS3	Combination	Min	Y	0.000108	297	9.6667	72.8229	26
Roof	DConS4	Combination	Max	X	4.5E-05	357	17.6667	87.6563	26
Roof	DConS4	Combination	Max	Y	3.2E-05	169	56.3333	37.4896	26
Roof	DConS4	Combination	Min	X	7.4E-05	357	17.6667	87.6563	26
Roof	DConS4	Combination	Min	Y	0.000121	297	9.6667	72.8229	26
Roof	DConS5	Combination	Max	X	2.8E-05	33	32.25	0	26
Roof	DConS5	Combination	Max	Y	5.9E-05	169	56.3333	37.4896	26
Roof	DConS5	Combination	Min	X	2.9E-05	357	17.6667	87.6563	26
Roof	DConS5	Combination	Min	Y	9.3E-05	297	9.6667	72.8229	26
Roof	DConS6	Combination	Max	X	2.8E-05	357	17.6667	87.6563	26
Roof	DConS6	Combination	Max	Y	4.4E-05	297	9.6667	72.8229	26
Roof	DConS6	Combination	Min	X	5.8E-05	357	17.6667	87.6563	26
Roof	DConS6	Combination	Min	Y	0.000106	297	9.6667	72.8229	26
Roof	DCmpD1	Combination		X	3.2E-05	357	17.6667	87.6563	26
Roof	DCmpD1	Combination		Y	2.7E-05	297	9.6667	72.8229	26
Roof	DCmpD2	Combination		X	3.9E-05	357	17.6667	87.6563	26
Roof	DCmpD2	Combination		Y	3.4E-05	297	9.6667	72.8229	26
Roof	DCmpS1	Combination		X	4.5E-05	357	17.6667	87.6563	26
Roof	DCmpS1	Combination		Y	3.8E-05	297	9.6667	72.8229	26
Roof	DCmpS2	Combination		X	5E-05	357	17.6667	87.6563	26
Roof	DCmpS2	Combination		Y	4.4E-05	297	9.6667	72.8229	26
Roof	DCmpC1	Combination		X	4.5E-05	357	17.6667	87.6563	26
Roof	DCmpC1	Combination		Y	3.8E-05	297	9.6667	72.8229	26

Table 5.2 - Story Drifts (continued)

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X ft	Y ft	Z ft
Roof	DCmpC2	Combination		X	3.8E-05	357	17.6667	87.6563	26
Roof	DCmpC2	Combination		Y	3.2E-05	297	9.6667	72.8229	26
Roof	DStlS1	Combination		X	4.5E-05	357	17.6667	87.6563	26
Roof	DStlS1	Combination		Y	3.8E-05	297	9.6667	72.8229	26
Roof	DStlS2	Combination		X	5E-05	357	17.6667	87.6563	26
Roof	DStlS2	Combination		Y	4.4E-05	297	9.6667	72.8229	26
Roof	DStlS3	Combination	Max	X	3.5E-05	33	32.25	0	26
Roof	DStlS3	Combination	Max	Y	7.4E-05	169	56.3333	37.4896	26
Roof	DStlS3	Combination	Min	X	4.2E-05	357	17.6667	87.6563	26
Roof	DStlS3	Combination	Min	Y	0.000125	297	9.6667	72.8229	26
Roof	DStlS4	Combination	Max	X	4.1E-05	357	17.6667	87.6563	26
Roof	DStlS4	Combination	Max	Y	5.3E-05	297	9.6667	72.8229	26
Roof	DStlS4	Combination	Min	X	7.9E-05	357	17.6667	87.6563	26
Roof	DStlS4	Combination	Min	Y	0.000142	297	9.6667	72.8229	26
Roof	DStlS5	Combination	Max	X	3.6E-05	33	32.25	0	26
Roof	DStlS5	Combination	Max	Y	7.7E-05	169	56.3333	37.4896	26
Roof	DStlS5	Combination	Min	X	3.9E-05	357	17.6667	87.6563	26
Roof	DStlS5	Combination	Min	Y	0.000121	297	9.6667	72.8229	26
Roof	DStlS6	Combination	Max	X	3.8E-05	357	17.6667	87.6563	26
Roof	DStlS6	Combination	Max	Y	5.7E-05	297	9.6667	72.8229	26
Roof	DStlS6	Combination	Min	X	7.6E-05	357	17.6667	87.6563	26
Roof	DStlS6	Combination	Min	Y	0.000138	297	9.6667	72.8229	26
Roof	DStlS7	Combination	Max	X	4E-05	33	32.25	0	26
Roof	DStlS7	Combination	Max	Y	8.2E-05	169	56.3333	37.4896	26
Roof	DStlS7	Combination	Min	X	2.9E-05	357	17.6667	87.6563	26
Roof	DStlS7	Combination	Min	Y	0.000113	297	9.6667	72.8229	26
Roof	DStlS8	Combination	Max	X	2.8E-05	357	17.6667	87.6563	26
Roof	DStlS8	Combination	Max	Y	6.5E-05	297	9.6667	72.8229	26
Roof	DStlS8	Combination	Min	X	6.8E-05	33	32.25	0	26
Roof	DStlS8	Combination	Min	Y	0.00013	297	9.6667	72.8229	26
Roof	DStlD1	Combination		X	3.2E-05	357	17.6667	87.6563	26
Roof	DStlD1	Combination		Y	2.7E-05	297	9.6667	72.8229	26
Roof	DStlD2	Combination		X	3.9E-05	357	17.6667	87.6563	26
Roof	DStlD2	Combination		Y	3.4E-05	297	9.6667	72.8229	26
Story1	Dead	LinStatic		Y	1.3E-05	71	1.6667	13.4063	14
Story1	Live	LinStatic		X	2E-06	34	34.4583	0	14
Story1	Live	LinStatic		Y	3E-06	71	1.6667	13.4063	14
Story1	Wind	LinStatic	Max	X	4.5E-05	34	34.4583	0	14
Story1	Wind	LinStatic	Max	Y	0.000108	71	1.6667	13.4063	14
Story1	Wind	LinStatic	Min	Y	8.7E-05	71	1.6667	13.4063	14
Story1	DSlbU1	Combination		Y	1.9E-05	71	1.6667	13.4063	14
Story1	DSlbU2	Combination		Y	2E-05	71	1.6667	13.4063	14
Story1	DSlbU3	Combination		Y	1.8E-05	71	1.6667	13.4063	14
Story1	DSlbU4	Combination		Y	1.8E-05	71	1.6667	13.4063	14
Story1	DSlbU5	Combination		Y	1.2E-05	71	1.6667	13.4063	14

Table 5.2 - Story Drifts (continued)

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X ft	Y ft	Z ft
Story1	DSlbU6	Combination		Y	1.2E-05	71	1.6667	13.4063	14
Story1	Comb1	Combination		Y	1.6E-05	71	1.6667	13.4063	14
Story1	Comb2	Combination		Y	1.5E-05	71	1.6667	13.4063	14
Story1	Comb3	Combination		Y	8E-06	71	1.6667	13.4063	14
Story1	Comb4	Combination		Y	1.3E-05	71	1.6667	13.4063	14
Story1	Comb5	Combination		Y	1.3E-05	71	1.6667	13.4063	14
Story1	Comb6	Combination		Y	1.5E-05	71	1.6667	13.4063	14
Story1	Comb7	Combination		Y	8E-06	71	1.6667	13.4063	14
Story1	DConS1	Combination		Y	1.9E-05	71	1.6667	13.4063	14
Story1	DConS2	Combination		Y	2E-05	71	1.6667	13.4063	14
Story1	DConS3	Combination	Max	X	5.4E-05	34	34.4583	0	14
Story1	DConS3	Combination	Max	Y	9.7E-05	129	58.8333	32.823	14
Story1	DConS3	Combination	Min	Y	0.000106	71	1.6667	13.4063	14
Story1	DConS4	Combination	Max	X	1.9E-05	34	34.4583	0	14
Story1	DConS4	Combination	Max	Y	7.7E-05	129	58.8333	32.823	14
Story1	DConS4	Combination	Min	X	5.2E-05	353	1.6667	87.6563	14
Story1	DConS4	Combination	Min	Y	0.000127	71	1.6667	13.4063	14
Story1	DConS5	Combination	Max	X	5E-05	34	34.4583	0	14
Story1	DConS5	Combination	Max	Y	0.0001	129	58.8333	32.823	14
Story1	DConS5	Combination	Min	Y	9.9E-05	71	1.6667	13.4063	14
Story1	DConS6	Combination	Max	Y	7.9E-05	129	58.8333	32.823	14
Story1	DConS6	Combination	Min	X	4.9E-05	353	1.6667	87.6563	14
Story1	DConS6	Combination	Min	Y	0.00012	71	1.6667	13.4063	14
Story1	DCmpD1	Combination		Y	1.3E-05	71	1.6667	13.4063	14
Story1	DCmpD2	Combination		Y	1.6E-05	71	1.6667	13.4063	14
Story1	DCmpS1	Combination		Y	1.9E-05	71	1.6667	13.4063	14
Story1	DCmpS2	Combination		Y	2E-05	71	1.6667	13.4063	14
Story1	DCmpC1	Combination		Y	1.9E-05	71	1.6667	13.4063	14
Story1	DCmpC2	Combination		Y	1.6E-05	71	1.6667	13.4063	14
Story1	DStlS1	Combination		Y	1.9E-05	71	1.6667	13.4063	14
Story1	DStlS2	Combination		Y	2E-05	71	1.6667	13.4063	14
Story1	DStlS3	Combination	Max	X	6.6E-05	34	34.4583	0	14
Story1	DStlS3	Combination	Max	Y	0.000129	129	58.8333	32.823	14
Story1	DStlS3	Combination	Min	Y	0.000131	71	1.6667	13.4063	14
Story1	DStlS4	Combination	Max	Y	0.000102	129	58.8333	32.823	14
Story1	DStlS4	Combination	Min	X	6.5E-05	353	1.6667	87.6563	14
Story1	DStlS4	Combination	Min	Y	0.000158	71	1.6667	13.4063	14
Story1	DStlS5	Combination	Max	X	6.6E-05	34	34.4583	0	14
Story1	DStlS5	Combination	Max	Y	0.000129	129	58.8333	32.823	14
Story1	DStlS5	Combination	Min	Y	0.000129	71	1.6667	13.4063	14
Story1	DStlS6	Combination	Max	Y	0.000102	129	58.8333	32.823	14
Story1	DStlS6	Combination	Min	X	6.4E-05	353	1.6667	87.6563	14
Story1	DStlS6	Combination	Min	Y	0.000156	71	1.6667	13.4063	14
Story1	DStlS7	Combination	Max	X	6.4E-05	34	34.4583	0	14
Story1	DStlS7	Combination	Max	Y	0.000131	129	58.8333	32.823	14

Table 5.2 - Story Drifts (continued)

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X ft	Y ft	Z ft
Story1	DStlS7	Combination	Min	Y	0.000125	71	1.6667	13.4063	14
Story1	DStlS8	Combination	Max	Y	0.000104	129	58.8333	32.823	14
Story1	DStlS8	Combination	Min	X	6.2E-05	353	1.6667	87.6563	14
Story1	DStlS8	Combination	Min	Y	0.000152	71	1.6667	13.4063	14
Story1	DStlD1	Combination		Y	1.3E-05	71	1.6667	13.4063	14
Story1	DStlD2	Combination		Y	1.6E-05	71	1.6667	13.4063	14

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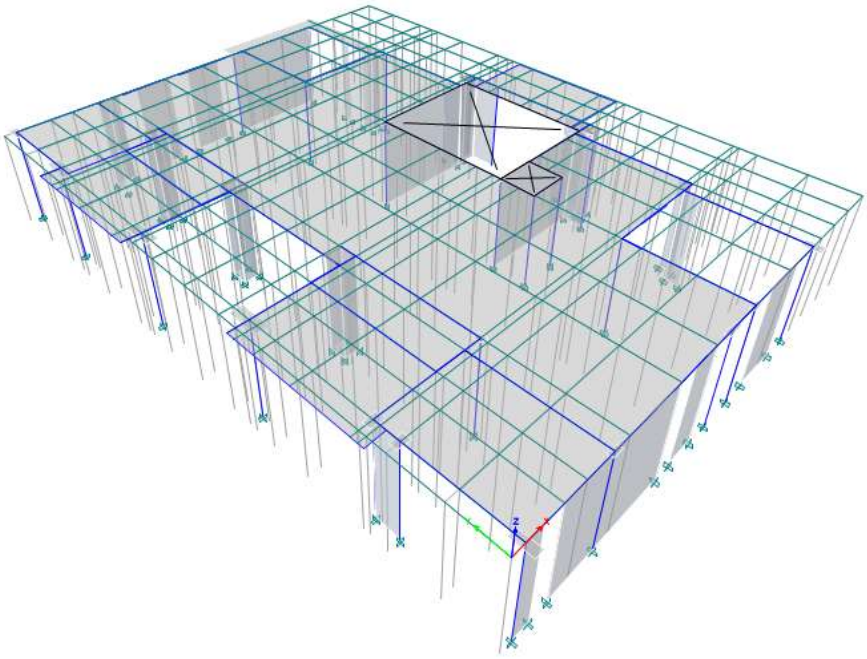

Second Floor slab

De La concepcion Residence

Model File: Second Floor slab, Revision

12/8/2022

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1 Structure Data

This chapter provides model geometry information, including items such as story levels, point coordinates, and element connectivity.

1.1 Grid Data

Table 1.1 - Grid Definitions - General

Name	Type	Ux ft	Uy ft	Rz deg	Datum Name	Story Name Above	Story Name Below	Model Datum ft	Story Height Above ft	Story Height Below ft	Bubble Size in	Color
GLOBAL	Cartesian	0	0	0	Story1		Base	0		14	60	10461087

Table 1.2 - Grid Definitions - Grid Lines

Name	Grid Line Type	ID	Ordinate ft	Bubble Location	Visible
GLOBAL	X (Cartesian)	A	0	End	Yes
GLOBAL	X (Cartesian)	B	1.6667	End	Yes
GLOBAL	X (Cartesian)	C	6.5833	End	Yes
GLOBAL	X (Cartesian)	D	9.6667	End	Yes
GLOBAL	X (Cartesian)	E	13.6667	End	Yes
GLOBAL	X (Cartesian)	F	16	End	Yes
GLOBAL	X (Cartesian)	G	24.5833	End	Yes
GLOBAL	X (Cartesian)	H	31.3333	End	Yes
GLOBAL	X (Cartesian)	I	39.3333	End	Yes
GLOBAL	X (Cartesian)	J	47.25	End	Yes
GLOBAL	X (Cartesian)	K	53.1667	End	Yes
GLOBAL	X (Cartesian)	L	55.1667	End	Yes
GLOBAL	X (Cartesian)	M	58.8333	End	Yes
GLOBAL	X (Cartesian)	N	63.0833	End	Yes
GLOBAL	X (Cartesian)	O	67.3333	End	Yes
GLOBAL	Y (Cartesian)	1	0	End	Yes
GLOBAL	Y (Cartesian)	2	6.7031	End	Yes
GLOBAL	Y (Cartesian)	3	13.4063	End	Yes
GLOBAL	Y (Cartesian)	4	15.8229	End	Yes
GLOBAL	Y (Cartesian)	5	16.7396	End	Yes
GLOBAL	Y (Cartesian)	6	24.9063	End	Yes
GLOBAL	Y (Cartesian)	7	30.4896	End	Yes
GLOBAL	Y (Cartesian)	8	33.4896	End	Yes
GLOBAL	Y (Cartesian)	9	34.7396	End	Yes
GLOBAL	Y (Cartesian)	10	37.4896	End	Yes
GLOBAL	Y (Cartesian)	11	43.8229	End	Yes
GLOBAL	Y (Cartesian)	12	50.1563	End	Yes
GLOBAL	Y (Cartesian)	13	54.1563	End	Yes
GLOBAL	Y (Cartesian)	14	55.0729	End	Yes
GLOBAL	Y (Cartesian)	15	57.1563	End	Yes
GLOBAL	Y (Cartesian)	16	64.9063	End	Yes
GLOBAL	Y (Cartesian)	17	70.4896	End	Yes
GLOBAL	Y (Cartesian)	18	71.8229	End	Yes

Table 1.2 - Grid Definitions - Grid Lines (continued)

Name	Grid Line Type	ID	Ordinate ft	Bubble Location	Visible
GLOBAL	Y (Cartesian)	19	74.7396	End	Yes
GLOBAL	Y (Cartesian)	20	81.1979	End	Yes
GLOBAL	Y (Cartesian)	21	87.6563	End	Yes

1.2 Line Connectivity

Table 1.3 - Column Object Connectivity

Unique Name	UniquePtI	UniquePtJ	Length ft
123	378	2	14
124	379	4	14
125	380	12	14
126	381	18	14
127	382	20	14
128	383	24	14
129	384	30	14
130	385	34	14
131	386	36	14
132	387	48	14
133	388	64	14
134	389	66	14
135	390	68	14
136	391	70	14
137	392	72	14
138	393	74	14
139	394	83	14
140	395	90	14
141	396	92	14
142	397	135	14
143	398	133	14
144	399	50	14
145	400	105	14
146	401	127	14
147	402	200	14
148	403	205	14

Table 1.4 - Beam Object Connectivity

Unique Name	UniquePtI	UniquePtJ	Length ft
B56	108	90	1.9167
B62	90	62	12.9167
B33	212	213	24
B1	2	127	12
B2	127	4	25.6667
B3	4	12	13.8333
B5	12	16	15.8229

Table 1.4 - Beam Object Connectivity (continued)

Unique Name	UniquePtI	UniquePtJ	Length ft
B52	135	38	15.8333
B59	40	48	15.8333
B58	135	136	15.8333
B64	62	136	25.6667
B65	136	48	13.8333
B63	64	62	12
B60	214	64	14.8333
B55	106	215	6.3333
B36	138	217	22.0833
B7	127	128	16.7396
B4	4	133	15.8229
B9	133	134	15.8333
B14	134	82	17.6667
B24	20	218	19.5
B32	141	142	20.6667
B38	83	86	15.8333
B40	86	219	3.6667
B46	86	38	17.6667
B53	214	106	8
B43	68	137	12
B47	110	106	17.75
B27	70	221	14.3333
B10	72	128	12
B16	120	124	18
B12	128	92	2.3333
B18	92	222	20.3333
B50	223	224	20.6667
B6	2	72	16.7396
B30	20	83	20.6667
B20	200	20	5.25
B19	200	205	5.6667
B21	205	206	5.25
B8	225	226	2.6666
B15	225	227	19.6667
B26	227	70	2.6667
B42	228	68	2.6666
B51	228	229	19.6667
B57	229	66	2.6667
B34	230	231	17.6667
B37	311	231	11
B29	312	230	11
W19-W	18	82	3
W47-W	86	34	3
W23-W	20	82	15.8333
W50-W	240	38	2.1667

Table 1.4 - Beam Object Connectivity (continued)

Unique Name	UniquePtI	UniquePtJ	Length ft
W56-W	243	38	0.8333
W68-W	248	136	2.1667
W75-W	249	136	0.8333
W67-W	258	62	2.1667
W69-W	62	259	0.8333
W3-W	127	99	6.4167
W4-W	116	154	6.1667
W6-W	193	4	7.0833
W8-W	236	133	2.4896
W12-W	133	197	1.5833
W13-W	203	210	5.5
W14-W	216	134	3.75
W17-W	134	163	2
W24-W	82	141	1.1667
W29-W	141	147	4
W35-W	148	220	4.3334
W37-W	86	142	1.1667
W54-W	281	288	5.5833
W52-W	135	283	4.6667
W53-W	283	281	2.25
W60-W	135	244	2.5
W74-W	294	292	8.8333
W71-W	297	295	7
W57-W	106	108	4
W61-W	108	260	1.25
W42-W	110	137	4
W40-W	118	137	0.5833
W26-W	124	138	3.9999
W28-W	138	265	0.5833
W16-W	120	128	3.9999
W11-W	234	128	2.1667

Table 1.5 - Null Line Object Connectivity

Unique Name	UniquePtI	UniquePtJ	Length ft
WW1	2	232	2.25
WW2	233	10	18
WW5	14	235	4.0833
WW7	78	80	6.6667
WW10	74	72	3.3333
WW30	218	24	4
WW34	30	219	4
WW51	36	38	1.3333
WW55	40	38	2
WW59	40	42	2.4167

Table 1.5 - Null Line Object Connectivity (continued)

Unique Name	UniquePtI	UniquePtJ	Length ft
WW65	44	46	2.0833
WW70	62	237	3.3333
WW72	58	238	5.6667
WW73	54	52	5.6667
WW76	50	48	15.8333
WW45	118	217	2.3333
WW31	138	239	2.3333
WW62	108	241	2.3333
WW15	16	134	2
WW9	166	16	2
WW46	223	242	2.3333
WW32	221	222	2.3333
WW63	215	224	2.3333
WW64	241	224	2.3333
WW58	108	215	2.3333
WW49	217	242	2.3333
WW39	118	223	2.3333
WW33	239	222	2.3333
WW27	138	221	2.3333
WW66	245	62	3.3333
WW25	82	218	3.6667
WW48	246	213	1.75
WW41	250	247	1.75
WW43	250	246	1
WW44	247	213	1
WW18	251	212	1.75
WW22	253	252	1.75
WW20	251	253	1
WW21	212	252	1

1.3 Area Connectivity

Table 1.6 - Floor Object Connectivity

Unique Name	UniquePt1	UniquePt2	UniquePt3	UniquePt4	Perimeter ft	Area ft2	Order
F73	214	108	62	64	53.6667	178	
F59	229	228	110	106	60.6667	194.44	1
F59	214	66					2
F15	2	127	128	72	57.4792	200.88	
F26	124	227	225	226	60.6668	196.45	1
F26	72	120					2
F45	127	4	133	134	305.979	2952.29	1
F45	82	20	83	86			2
F45	38	135	136	62			3
F45	108	106	110	137			4
F45	138	124	120	128			5

Table 1.6 - Floor Object Connectivity (continued)

Unique Name	UniquePt1	UniquePt2	UniquePt3	UniquePt4	Perimeter ft	Area ft2	Order
F43	148	147	24	254	57.3334	181.83	1
F43	230	231	255	30			2
F75	48	40	261	257	74	91.56	1
F75	256	50					2
F35	262	212	24	147	16.3332	14.17	
F48	148	30	213	263	16.3333	14.17	
ColC2	264	266	267	268	7.3333	2.67	
ColC4	269	270	271	272	4	0.89	
ColC12	273	274	275	276	7.1667	3	
ColC18	277	278	279	280	4	0.89	
ColC20	282	284	285	286	4.8333	1.17	
ColC24	287	289	290	291	4	0.89	
ColC30	293	296	298	299	4	0.89	
ColC34	300	301	302	303	4	0.89	
ColC36	304	305	306	307	4	0.89	
ColC48	308	309	310	313	4.8333	1.17	
ColC64	314	315	316	317	7.3333	2.67	
ColC66	318	319	320	321	12	7.22	
ColC68	322	323	324	325	12	7.22	
ColC70	326	327	328	329	12	7.22	
ColC72	330	331	332	333	5.3333	1.67	
ColC74	334	335	336	337	5.3333	1.67	
ColC83	338	339	340	341	4.8333	1.17	
ColC90	342	343	344	345	5	1.22	
ColC92	346	347	348	349	4	1	
ColC135	350	351	352	353	2	0.25	
ColC133	354	355	356	357	2	0.25	
ColC50	358	359	360	361	5	1.22	
ColC105	362	363	364	365	5.8333	1.5	
ColC127	366	367	368	369	4	0.89	
ColC200	370	371	372	373	1.6667	0.17	
ColC205	374	375	376	377	1.3333	0.11	

Table 1.7 - Wall Object Connectivity

UniqueName	UniquePt1	UniquePt2	UniquePt3	UniquePt4	Perimeter ft	Area ft2
38	378	404	232	2	32.5	31.5
39	405	406	10	233	64	252
40	407	408	235	14	36.1667	57.17
41	409	410	80	78	41.3333	93.33
42	393	392	72	74	34.6667	46.67
43	381	411	82	18	34	42
44	412	383	24	218	36	56
45	384	413	219	30	36	56
46	414	385	34	86	34	42

Table 1.7 - Wall Object Connectivity (continued)

UniqueName	UniquePt1	UniquePt2	UniquePt3	UniquePt4	Perimeter ft	Area ft2
47	386	415	38	36	30.6667	18.67
48	416	415	38	40	32	28
49	416	417	42	40	32.8333	33.83
50	418	419	46	44	32.1667	29.17
51	420	421	237	62	34.6667	46.67
52	422	423	238	58	39.3333	79.33
53	424	425	52	54	39.3333	79.33
54	399	387	48	50	59.6667	221.67
55	426	427	217	118	32.6667	32.67
56	428	429	239	138	32.6667	32.67
57	430	431	241	108	32.6667	32.67
58	432	433	134	16	32	28
59	434	432	16	166	32	28
60	433	435	163	134	32	28
61	436	437	242	223	32.6667	32.67
62	438	439	222	221	32.6667	32.67
63	440	441	224	215	32.6667	32.67
64	431	441	224	241	32.6667	32.67
65	430	440	215	108	32.6667	32.67
66	427	437	242	217	32.6667	32.67
67	426	436	223	118	32.6667	32.67
68	429	439	222	239	32.6667	32.67
69	428	438	221	138	32.6667	32.67
70	442	420	62	245	34.6667	46.67
71	414	413	219	86	35.3333	51.33
72	394	414	86	83	59.6667	221.67
73	382	411	82	20	59.6667	221.67
74	411	412	218	82	35.3333	51.33
75	443	444	213	246	31.5	24.5
76	445	446	247	250	31.5	24.5
77	445	443	246	250	30	14
78	446	444	213	247	30	14
79	447	448	212	251	31.5	24.5
80	449	450	252	253	31.5	24.5
81	447	449	253	251	30	14
82	448	450	252	212	30	14

Table 1.8 - Null Area Object Connectivity

Unique Name	UniquePt1	UniquePt2	UniquePt3	UniquePt4	Perimeter ft	Area ft2
A4	20	141	142	83	75.3333	351.33
A3	200	205	206	20	21.8333	29.75

1.4 Strip Connectivity

Table 1.9 - Strip Object Connectivity

Name	Number Segments	Strip Start Point	Segment End Point	Start Width Left ft	Start Width Right ft	End Width Left ft	End Width Right ft	Auto Widen	Layer
CSA1	1	2	3	3.3516	3.3516	3.3516	3.3516	No	A
CSA10	1	28	29	3.1667	1.375	3.1667	1.375	No	A
CSA11	1	31	32	3.1667	3.1667	3.1667	3.1667	No	A
CSA12	1	33	35	2	3.1667	2	3.1667	No	A
CSA13	1	37	39	0.4583	2	0.4583	2	No	A
CSA14	1	228	43	1.0417	0.4583	1.0417	0.4583	No	A
CSA15	1	79	47	3.875	1.0417	3.875	1.0417	No	A
CSA16	1	81	51	2.7916	3.875	2.7916	3.875	No	A
CSA17	1	84	55	0.6667	2.7916	0.6667	2.7916	No	A
CSA18	1	85	57	1.4583	0.6667	1.4583	0.6667	No	A
CSA19	1	229	60	3.2292	1.4583	3.2292	1.4583	No	A
CSA2	1	69	6	3.3516	3.3516	3.3516	3.3516	No	A
CSA20	1	87	63	3.2292	3.2292	3.2292	3.2292	No	A
CSA21	1	64	67	3.2292	3.2292	3.2292	3.2292	No	A
CSA3	1	74	8	1.2083	3.3516	1.2083	3.3516	No	A
CSA4	1	71	11	0.4583	1.2083	0.4583	1.2083	No	A
CSA5	1	73	15	4.0834	0.4583	4.0834	0.4583	No	A
CSA6	1	75	19	2.7916	4.0834	2.7916	4.0834	No	A
CSA7	1	76	22	1.5	2.7916	1.5	2.7916	No	A
CSA8	1	77	25	0.625	1.5	0.625	1.5	No	A
CSA9	1	227	27	1.375	0.625	1.375	0.625	No	A
CSB1	1	88	89	0.8333	0.8333	0.8333	0.8333	No	B
CSB10	1	97	98	3.9583	2.9583	3.9583	2.9583	No	B
CSB11	1	12	48	2.9583	1	2.9583	1	No	B
CSB12	1	100	109	1	1.8333	1	1.8333	No	B
CSB13	1	102	103	1.8333	2.125	1.8333	2.125	No	B
CSB14	1	104	107	2.125	2.125	2.125	2.125	No	B
CSB15	1	3	67	2.125	2.125	2.125	2.125	No	B
CSB2	1	2	64	0.8333	2.4583	0.8333	2.4583	No	B
CSB3	1	233	91	2.4583	1.5417	2.4583	1.5417	No	B
CSB4	1	93	94	1.5417	2	1.5417	2	No	B
CSB5	1	127	62	2	1.1667	2	1.1667	No	B
CSB6	1	P589	95	1.1667	4.2917	1.1667	4.2917	No	B
CSB7	1	10	96	4.2917	3.375	4.2917	3.375	No	B
CSB8	1	235	P597	3.375	4	3.375	4	No	B
CSB9	1	4	136	4	3.9583	4	3.9583	No	B

2 Properties

This chapter provides property information for materials, frame sections, shell sections, and links.

2.1 Materials

Table 2.1 - Material Properties - General

Material	Type	SymType	Grade	Color	Notes
4000Psi	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
A416Gr270	Tendon	Uniaxial	Unknown	Magenta	ASTM A416 Grade 270 added 12/8/2022 10:34:24 AM
A615Gr60	Rebar	Uniaxial	Unknown	Cyan	ASTM A615 Grade 60 added 12/8/2022 10:34:24 AM
A992Fy50	Steel	Isotropic	Grade 50	Gray8Dark	
MAT1	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
MAT2	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
MAT3	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
MAT4	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
MAT5	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
MAT6	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
MAT7	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM
MAT8	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:34:24 AM

2.2 Frame Sections

Table 2.2 - Frame Section Property Definitions - Summary (Part 1 of 3)

Name	Material	Shape	Color	Area in2	J in4	I33 in4	I22 in4	I23 in4	As2 in2
2B-1	MAT1	Concrete Rectangular	Blue	352	6649.25	56789.33	1877.33		293.33
2B-10	MAT1	Concrete Rectangular	Yellow	352	6649.25	56789.33	1877.33		293.33
2B-11	MAT1	Concrete Rectangular	Blue	256	4601.45	21845.33	1365.33		213.33
2B-12	MAT1	Concrete Rectangular	Green	256	4601.45	21845.33	1365.33		213.33
2B-13	MAT1	Concrete Rectangular	Red	352	16595.63	14197.33	7509.33		293.33
2B-14	MAT1	Concrete Rectangular	Magenta	304	5625.31	36581.33	1621.33		253.33
2B-15	MAT1	Concrete Rectangular	Yellow	528	20991.45	85184	6336		440
2B-16	MAT1	Concrete Rectangular	Cyan	384	7331.9	73728	2048		320
2B-17	MAT1	Concrete Rectangular	Red	240	7212.47	8000	2880		200
2B-18	MAT1	Concrete Rectangular	Magenta	240	7212.47	8000	2880		200
2B-19	MAT1	Concrete Rectangular	Yellow	240	7212.47	8000	2880		200
2B-2	MAT1	Concrete Rectangular	Green	384	7331.9	73728	2048		320
2B-20	MAT1	Concrete Rectangular	Gray8Dark	440	26979.1	17746.67	14666.67		366.67
2B-21	MAT1	Concrete Rectangular	Blue	160	2555.01	5333.33	853.33		133.33
2B-22	MAT1	Concrete Rectangular	Green	160	2555.01	5333.33	853.33		133.33
2B-23	MAT1	Concrete Rectangular	Cyan	160	2555.01	5333.33	853.33		133.33
2B-24	MAT1	Concrete Rectangular	Red	160	2555.01	5333.33	853.33		133.33
2B-3	MAT1	Concrete Rectangular	Cyan	352	16595.63	14197.33	7509.33		293.33
2B-37	MAT1	Concrete Rectangular	Magenta	176	2895.76	7098.67	938.67		146.67
2B-38	MAT1	Concrete Rectangular	Green	176	2895.76	7098.67	938.67		146.67
2B-4	MAT1	Concrete Rectangular	Red	216	6085.12	5832	2592		180
2B-43	MAT1	Concrete Rectangular	Red	256	4601.45	21845.33	1365.33		213.33
2B-44	MAT1	Concrete Rectangular	Magenta	128	1874.99	2730.67	682.67		106.67

Table 2.2 - Frame Section Property Definitions - Summary (Part 1 of 3, continued)

Name	Material	Shape	Color	Area in2	J in4	I33 in4	I22 in4	I23 in4	As2 in2
2B-45	MAT1	Concrete Rectangular	Cyan	128	1874.99	2730.67	682.67		106.67
2B-5	MAT1	Concrete Rectangular	Yellow	192	3236.72	9216	1024		160
2B-6	MAT1	Concrete Rectangular	Magenta	256	4601.45	21845.33	1365.33		213.33
2B-7	MAT1	Concrete Rectangular	Gray8Dark	440	26979.1	17746.67	14666.67		366.67
2B-8	MAT1	Concrete Rectangular	Red	192	3236.72	9216	1024		160
2B-9	MAT1	Concrete Rectangular	Magenta	112	1536.82	1829.33	597.33		93.33
8CMU-W	MAT3	Concrete Rectangular	Yellow	1152	23715.84	1990656	6144		960
8CW-W	MAT4	Concrete Rectangular	Gray8Dark	1152	23715.84	1990656	6144		960
BEAM1	4000Psi	Concrete Rectangular	Cyan	288	9492.12	13824	3456		240
C105	MAT7	Concrete Rectangular	Yellow	216	3748.39	13122	1152		180
C12	MAT7	Concrete Rectangular	Magenta	432	23242.87	9216	26244		360
C127	MAT7	Concrete Rectangular	Gray8Dark	128	1874.99	2730.67	682.67		106.67
C133	MAT8	Concrete Rectangular	Red	36	182.52	108	108		30
C135	MAT8	Concrete Rectangular	Gray8Dark	36	182.52	108	108		30
C18	MAT7	Concrete Rectangular	Yellow	128	1874.99	2730.67	682.67		106.67
C2	MAT7	Concrete Rectangular	Cyan	384	14084.62	32768	4608		320
C20	MAT7	Concrete Rectangular	Cyan	168	2725.35	6174	896		140
C200	MAT8	Concrete Rectangular	Red	24	75.12	72	32		20
C205	MAT8	Concrete Rectangular	Magenta	16	36.05	21.33	21.33		13.33
C24	MAT7	Concrete Rectangular	Red	128	1874.99	2730.67	682.67		106.67
C30	MAT7	Concrete Rectangular	Magenta	128	1874.99	2730.67	682.67		106.67
C34	MAT7	Concrete Rectangular	Yellow	128	1874.99	2730.67	682.67		106.67
C36	MAT7	Concrete Rectangular	Gray8Dark	128	1874.99	2730.67	682.67		106.67
C4	MAT7	Concrete Rectangular	Red	128	1874.99	2730.67	682.67		106.67
C48	MAT7	Concrete Rectangular	Blue	168	2725.35	6174	896		140
C50	MAT7	Concrete Rectangular	Magenta	176	2895.76	7098.67	938.67		146.67
C64	MAT7	Concrete Rectangular	Green	384	14084.62	32768	4608		320
C66	MAT7	Concrete Rectangular	Cyan	1040	105127.94	234346.67	34666.67		866.67
C68	MAT7	Concrete Rectangular	Red	1040	105127.94	234346.67	34666.67		866.67
C70	MAT7	Concrete Rectangular	Magenta	1040	105127.94	234346.67	34666.67		866.67
C72	MAT7	Concrete Rectangular	Green	240	7212.47	8000	2880		200
C74	MAT7	Concrete Rectangular	Cyan	240	7212.47	8000	2880		200
C83	MAT7	Concrete Rectangular	Red	168	2725.35	6174	896		140
C90	MAT7	Concrete Rectangular	Magenta	176	2895.76	7098.67	938.67		146.67
C92	MAT7	Concrete Rectangular	Yellow	144	2920.32	1728	1728		120
COL1	4000Psi	Concrete Rectangular	Cyan	288	9492.12	13824	3456		240
HSS8X6X3/8	MAT2	General	Cyan	8.97	100	79.1	50.6	0	5.58
TB-1	MAT1	Concrete Rectangular	Gray8Dark	96	1202	1152	512		80
TB-2	MAT1	Concrete Rectangular	Gray8Dark	352	16595.63	14197.33	7509.33		293.33

Table 2.2 - Frame Section Property Definitions - Summary (Part 2 of 3)

Name	As3 in2	S33Pos in3	S33Neg in3	S22Pos in3	S22Neg in3	Z33 in3	Z22 in3	R33 in	R22 in	CG Offset 3 in	CG Offset 2 in	PNA Offset 3 in
2B-1	293.33	2581.33	2581.33	469.33	469.33	3872	704	12.7017	2.3094	0	0	0
2B-10	293.33	2581.33	2581.33	469.33	469.33	3872	704	12.7017	2.3094	0	0	0
2B-11	213.33	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-12	213.33	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-13	293.33	1290.67	1290.67	938.67	938.67	1936	1408	6.3509	4.6188	0	0	0
2B-14	253.33	1925.33	1925.33	405.33	405.33	2888	608	10.9697	2.3094	0	0	0
2B-15	440	3872	3872	1056	1056	5808	1584	12.7017	3.4641	0	0	0
2B-16	320	3072	3072	512	512	4608	768	13.8564	2.3094	0	0	0
2B-17	200	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
2B-18	200	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
2B-19	200	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
2B-2	320	3072	3072	512	512	4608	768	13.8564	2.3094	0	0	0
2B-20	366.67	1613.33	1613.33	1466.67	1466.67	2420	2200	6.3509	5.7735	0	0	0
2B-21	133.33	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-22	133.33	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-23	133.33	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-24	133.33	533.33	533.33	213.33	213.33	800	320	5.7735	2.3094	0	0	0
2B-3	293.33	1290.67	1290.67	938.67	938.67	1936	1408	6.3509	4.6188	0	0	0
2B-37	146.67	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
2B-38	146.67	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
2B-4	180	648	648	432	432	972	648	5.1962	3.4641	0	0	0
2B-43	213.33	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-44	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
2B-45	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
2B-5	160	768	768	256	256	1152	384	6.9282	2.3094	0	0	0
2B-6	213.33	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0
2B-7	366.67	1613.33	1613.33	1466.67	1466.67	2420	2200	6.3509	5.7735	0	0	0
2B-8	160	768	768	256	256	1152	384	6.9282	2.3094	0	0	0
2B-9	93.33	261.33	261.33	149.33	149.33	392	224	4.0415	2.3094	0	0	0
8CMU-W	960	27648	27648	1536	1536	41472	2304	41.5692	2.3094	0	0	0
8CW-W	960	27648	27648	1536	1536	41472	2304	41.5692	2.3094	0	0	0
BEAM1	240	1152	1152	576	576	1728	864	6.9282	3.4641	0	0	0
C105	180	972	972	288	288	1458	432	7.7942	2.3094	0	0	0
C12	360	1152	1152	1944	1944	1728	2916	4.6188	7.7942	0	0	0
C127	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
C133	30	36	36	36	36	54	54	1.7321	1.7321	0	0	0
C135	30	36	36	36	36	54	54	1.7321	1.7321	0	0	0
C18	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
C2	320	2048	2048	768	768	3072	1152	9.2376	3.4641	0	0	0
C20	140	588	588	224	224	882	336	6.0622	2.3094	0	0	0
C200	20	24	24	16	16	36	24	1.7321	1.1547	0	0	0
C205	13.33	10.67	10.67	10.67	10.67	16	16	1.1547	1.1547	0	0	0
C24	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
C30	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0

Table 2.2 - Frame Section Property Definitions - Summary (Part 2 of 3, continued)

Name	As3 in2	S33Pos in3	S33Neg in3	S22Pos in3	S22Neg in3	Z33 in3	Z22 in3	R33 in	R22 in	CG Offset 3 in	CG Offset 2 in	PNA Offset 3 in
C34	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
C36	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
C4	106.67	341.33	341.33	170.67	170.67	512	256	4.6188	2.3094	0	0	0
C48	140	588	588	224	224	882	336	6.0622	2.3094	0	0	0
C50	146.67	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
C64	320	2048	2048	768	768	3072	1152	9.2376	3.4641	0	0	0
C66	866.67	9013.33	9013.33	3466.67	3466.67	13520	5200	15.0111	5.7735	0	0	0
C68	866.67	9013.33	9013.33	3466.67	3466.67	13520	5200	15.0111	5.7735	0	0	0
C70	866.67	9013.33	9013.33	3466.67	3466.67	13520	5200	15.0111	5.7735	0	0	0
C72	200	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
C74	200	800	800	480	480	1200	720	5.7735	3.4641	0	0	0
C83	140	588	588	224	224	882	336	6.0622	2.3094	0	0	0
C90	146.67	645.33	645.33	234.67	234.67	968	352	6.3509	2.3094	0	0	0
C92	120	288	288	288	288	432	432	3.4641	3.4641	0	0	0
COL1	240	1152	1152	576	576	1728	864	6.9282	3.4641	0	0	0
HSS8X6X3/8	4.19	5184	5184	3456	3456	0	0	0	0	0	0	0
TB-1	80	192	192	128	128	288	192	3.4641	2.3094	0	0	0
TB-2	293.33	1290.67	1290.67	938.67	938.67	1936	1408	6.3509	4.6188	0	0	0

Table 2.2 - Frame Section Property Definitions - Summary (Part 3 of 3)

Name	Area Modifier	As2 Modifier	As3 Modifier	J Modifier	I33 Modifier	I22 Modifier	Mass Modifier	Weight Modifier
2B-1	1	1	1	1	1	1	1	1
2B-10	1	1	1	1	1	1	1	1
2B-11	1	1	1	1	1	1	1	1
2B-12	1	1	1	1	1	1	1	1
2B-13	1	1	1	1	1	1	1	1
2B-14	1	1	1	1	1	1	1	1
2B-15	1	1	1	1	1	1	1	1
2B-16	1	1	1	1	1	1	1	1
2B-17	1	1	1	1	1	1	1	1
2B-18	1	1	1	1	1	1	1	1
2B-19	1	1	1	1	1	1	1	1
2B-2	1	1	1	1	1	1	1	1
2B-20	1	1	1	1	1	1	1	1
2B-21	1	1	1	1	1	1	1	1
2B-22	1	1	1	1	1	1	1	1
2B-23	1	1	1	1	1	1	1	1
2B-24	1	1	1	1	1	1	1	1
2B-3	1	1	1	1	1	1	1	1
2B-37	1	1	1	1	1	1	1	1
2B-38	1	1	1	1	1	1	1	1
2B-4	1	1	1	1	1	1	1	1
2B-43	1	1	1	1	1	1	1	1

Table 2.2 - Frame Section Property Definitions - Summary (Part 3 of 3, continued)

Name	Area Modifier	As2 Modifier	As3 Modifier	J Modifier	I33 Modifier	I22 Modifier	Mass Modifier	Weight Modifier
2B-44	1	1	1	1	1	1	1	1
2B-45	1	1	1	1	1	1	1	1
2B-5	1	1	1	1	1	1	1	1
2B-6	1	1	1	1	1	1	1	1
2B-7	1	1	1	1	1	1	1	1
2B-8	1	1	1	1	1	1	1	1
2B-9	1	1	1	1	1	1	1	1
8CMU-W	1	1	1	1	1	1	1	1
8CW-W	1	1	1	1	1	1	1	1
BEAM1	1	1	1	1	1	1	1	1
C105	1	1	1	1	1	1	1	1
C12	1	1	1	1	1	1	1	1
C127	1	1	1	1	1	1	1	1
C133	1	1	1	1	1	1	1	1
C135	1	1	1	1	1	1	1	1
C18	1	1	1	1	1	1	1	1
C2	1	1	1	1	1	1	1	1
C20	1	1	1	1	1	1	1	1
C200	1	1	1	1	1	1	1	1
C205	1	1	1	1	1	1	1	1
C24	1	1	1	1	1	1	1	1
C30	1	1	1	1	1	1	1	1
C34	1	1	1	1	1	1	1	1
C36	1	1	1	1	1	1	1	1
C4	1	1	1	1	1	1	1	1
C48	1	1	1	1	1	1	1	1
C50	1	1	1	1	1	1	1	1
C64	1	1	1	1	1	1	1	1
C66	1	1	1	1	1	1	1	1
C68	1	1	1	1	1	1	1	1
C70	1	1	1	1	1	1	1	1
C72	1	1	1	1	1	1	1	1
C74	1	1	1	1	1	1	1	1
C83	1	1	1	1	1	1	1	1
C90	1	1	1	1	1	1	1	1
C92	1	1	1	1	1	1	1	1
COL1	1	1	1	1	1	1	1	1
HSS8X6X3/8	1	1	1	1	1	1	1	1
TB-1	1	1	1	1	1	1	1	1
TB-2	1	1	1	1	1	1	1	1

2.3 Shell Sections

Table 2.3 - Area Section Property Definitions - Summary

Name	Type	Element Type	Material	Total Thickness in
Col_{Stiff}	Slab	Shell-Thin	MAT6	8
SLAB1	Slab	Shell-Thick	MAT4	8
Slab8	Slab	Shell-Thin	MAT5	8
WALL1	Wall	Shell-Thick	4000Psi	12
WW1	Wall	Shell-Thick	MAT3	8
WW10	Wall	Shell-Thick	MAT3	12
WW15	Wall	Shell-Thick	MAT4	8
WW17	Wall	Shell-Thick	MAT4	8
WW18	Wall	Shell-Thick	MAT3	8
WW19	Wall	Shell-Thick	MAT3	8
WW2	Wall	Shell-Thick	MAT3	8
WW20	Wall	Shell-Thick	MAT3	8
WW21	Wall	Shell-Thick	MAT3	8
WW22	Wall	Shell-Thick	MAT3	8
WW23	Wall	Shell-Thick	MAT3	8
WW25	Wall	Shell-Thick	MAT4	8
WW27	Wall	Shell-Thick	MAT3	8
WW30	Wall	Shell-Thick	MAT3	8
WW31	Wall	Shell-Thick	MAT3	8
WW32	Wall	Shell-Thick	MAT3	8
WW33	Wall	Shell-Thick	MAT3	8
WW34	Wall	Shell-Thick	MAT3	8
WW36	Wall	Shell-Thick	MAT3	8
WW38	Wall	Shell-Thick	MAT4	8
WW39	Wall	Shell-Thick	MAT3	8
WW41	Wall	Shell-Thick	MAT3	8
WW43	Wall	Shell-Thick	MAT3	8
WW44	Wall	Shell-Thick	MAT3	8
WW45	Wall	Shell-Thick	MAT3	8
WW46	Wall	Shell-Thick	MAT3	8
WW47	Wall	Shell-Thick	MAT3	8
WW48	Wall	Shell-Thick	MAT3	8
WW49	Wall	Shell-Thick	MAT3	8
WW5	Wall	Shell-Thick	MAT3	8
WW51	Wall	Shell-Thick	MAT3	8
WW55	Wall	Shell-Thick	MAT3	8
WW58	Wall	Shell-Thick	MAT3	8
WW59	Wall	Shell-Thick	MAT3	8
WW62	Wall	Shell-Thick	MAT3	8
WW63	Wall	Shell-Thick	MAT3	8
WW64	Wall	Shell-Thick	MAT3	8
WW65	Wall	Shell-Thick	MAT3	8
WW66	Wall	Shell-Thick	MAT4	8
WW7	Wall	Shell-Thick	MAT3	8

Table 2.3 - Area Section Property Definitions - Summary (continued)

Name	Type	Element Type	Material	Total Thickness in
WW70	Wall	Shell-Thick	MAT3	8
WW72	Wall	Shell-Thick	MAT3	8
WW73	Wall	Shell-Thick	MAT3	8
WW76	Wall	Shell-Thick	MAT3	8
WW9	Wall	Shell-Thick	MAT4	8

2.4 Reinforcement Sizes

Table 2.4 - Reinforcing Bar Sizes

Name	Diameter in	Area in2
#2	0.25	0.05
#3	0.375	0.11
#4	0.5	0.2
#5	0.625	0.31
#6	0.75	0.44
#7	0.875	0.6
#8	1	0.79
#9	1.128	1
#10	1.27	1.27
#11	1.41	1.56
#14	1.693	2.25
#18	2.257	4

3 Assignments

This chapter provides a listing of the assignments applied to the model.

3.1 Joint Assignments

Table 3.1 - Joint Assignments - Summary

UniqueName	Diaphragm	Restraints
2	From Area	
4	From Area	
12	From Area	
16	From Area	
18	From Area	
20	From Area	
24	From Area	
30	From Area	
34	From Area	
36	From Area	
38	From Area	
40	From Area	
42	From Area	
44	From Area	
46	From Area	
48	From Area	
50	From Area	
52	From Area	
54	From Area	
58	From Area	
62	From Area	
64	From Area	
66	From Area	
68	From Area	
70	From Area	
72	From Area	
74	From Area	
10	From Area	
14	From Area	
78	From Area	
80	From Area	
82	From Area	
83	From Area	
86	From Area	
90	From Area	
92	From Area	
106	From Area	
108	From Area	
110	From Area	
120	From Area	
124	From Area	
127	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
128	From Area	
133	From Area	
134	From Area	
135	From Area	
136	From Area	
137	From Area	
138	From Area	
141	From Area	
142	From Area	
147	From Area	
148	From Area	
118	From Area	
163	From Area	
166	From Area	
105	From Area	
234	From Area	
236	From Area	
240	From Area	
243	From Area	
244	From Area	
248	From Area	
249	From Area	
258	From Area	
259	From Area	
260	From Area	
265	From Area	
99	From Area	
116	From Area	
154	From Area	
193	From Area	
197	From Area	
203	From Area	
210	From Area	
216	From Area	
220	From Area	
281	From Area	
283	From Area	
288	From Area	
292	From Area	
294	From Area	
295	From Area	
297	From Area	
200	From Area	
205	From Area	
206	From Area	
311	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
312	From Area	
P561	From Area	
P562	From Area	
P563	From Area	
P564	From Area	
P565	From Area	
P566	From Area	
P567	From Area	
P568	From Area	
P569	From Area	
P570	From Area	
P571	From Area	
P572	From Area	
P573	From Area	
P574	From Area	
P575	From Area	
P576	From Area	
P577	From Area	
P578	From Area	
P579	From Area	
P580	From Area	
P581	From Area	
P582	From Area	
P583	From Area	
P584	From Area	
P585	From Area	
P586	From Area	
P587	From Area	
P588	From Area	
P589	From Area	
P590	From Area	
P591	From Area	
P592	From Area	
P593	From Area	
P594	From Area	
P595	From Area	
P596	From Area	
P597	From Area	
P598	From Area	
P599	From Area	
P600	From Area	
P601	From Area	
P602	From Area	
P603	From Area	
P604	From Area	
P605	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
P606	From Area	
P607	From Area	
P608	From Area	
P609	From Area	
P610	From Area	
P611	From Area	
P612	From Area	
P613	From Area	
P614	From Area	
P615	From Area	
P616	From Area	
P617	From Area	
P618	From Area	
212	From Area	
213	From Area	
214	From Area	
215	From Area	
217	From Area	
218	From Area	
219	From Area	
221	From Area	
222	From Area	
223	From Area	
224	From Area	
225	From Area	
226	From Area	
227	From Area	
228	From Area	
229	From Area	
230	From Area	
231	From Area	
232	From Area	
233	From Area	
235	From Area	
237	From Area	
238	From Area	
239	From Area	
241	From Area	
242	From Area	
245	From Area	
246	From Area	
247	From Area	
250	From Area	
251	From Area	
252	From Area	
253	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
254	From Area	
255	From Area	
256	From Area	
257	From Area	
261	From Area	
262	From Area	
263	From Area	
264	From Area	
266	From Area	
267	From Area	
268	From Area	
269	From Area	
270	From Area	
271	From Area	
272	From Area	
273	From Area	
274	From Area	
275	From Area	
276	From Area	
277	From Area	
278	From Area	
279	From Area	
280	From Area	
282	From Area	
284	From Area	
285	From Area	
286	From Area	
287	From Area	
289	From Area	
290	From Area	
291	From Area	
293	From Area	
296	From Area	
298	From Area	
299	From Area	
300	From Area	
301	From Area	
302	From Area	
303	From Area	
304	From Area	
305	From Area	
306	From Area	
307	From Area	
308	From Area	
309	From Area	
310	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
313	From Area	
314	From Area	
315	From Area	
316	From Area	
317	From Area	
318	From Area	
319	From Area	
320	From Area	
321	From Area	
322	From Area	
323	From Area	
324	From Area	
325	From Area	
326	From Area	
327	From Area	
328	From Area	
329	From Area	
330	From Area	
331	From Area	
332	From Area	
333	From Area	
334	From Area	
335	From Area	
336	From Area	
337	From Area	
338	From Area	
339	From Area	
340	From Area	
341	From Area	
342	From Area	
343	From Area	
344	From Area	
345	From Area	
346	From Area	
347	From Area	
348	From Area	
349	From Area	
350	From Area	
351	From Area	
352	From Area	
353	From Area	
354	From Area	
355	From Area	
356	From Area	
357	From Area	
358	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
359	From Area	
360	From Area	
361	From Area	
362	From Area	
363	From Area	
364	From Area	
365	From Area	
366	From Area	
367	From Area	
368	From Area	
369	From Area	
370	From Area	
371	From Area	
372	From Area	
373	From Area	
374	From Area	
375	From Area	
376	From Area	
377	From Area	
88	From Area	
3	From Area	
6	From Area	
8	From Area	
11	From Area	
15	From Area	
19	From Area	
22	From Area	
25	From Area	
27	From Area	
28	From Area	
29	From Area	
31	From Area	
32	From Area	
33	From Area	
35	From Area	
37	From Area	
39	From Area	
43	From Area	
47	From Area	
51	From Area	
55	From Area	
57	From Area	
60	From Area	
63	From Area	
89	From Area	
67	From Area	

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
69	From Area	
71	From Area	
73	From Area	
75	From Area	
76	From Area	
77	From Area	
79	From Area	
81	From Area	
84	From Area	
85	From Area	
87	From Area	
91	From Area	
93	From Area	
94	From Area	
95	From Area	
96	From Area	
97	From Area	
98	From Area	
100	From Area	
102	From Area	
103	From Area	
104	From Area	
107	From Area	
109	From Area	
378	From Area	UX; UY; UZ; RX; RY; RZ
379	From Area	UX; UY; UZ; RX; RY; RZ
380	From Area	UX; UY; UZ; RX; RY; RZ
432	From Area	UX; UY; UZ; RX; RY; RZ
381	From Area	UX; UY; UZ; RX; RY; RZ
382	From Area	UX; UY; UZ; RX; RY; RZ
383	From Area	UX; UY; UZ; RX; RY; RZ
384	From Area	UX; UY; UZ; RX; RY; RZ
385	From Area	UX; UY; UZ; RX; RY; RZ
386	From Area	UX; UY; UZ; RX; RY; RZ
415	From Area	UX; UY; UZ; RX; RY; RZ
416	From Area	UX; UY; UZ; RX; RY; RZ
417	From Area	UX; UY; UZ; RX; RY; RZ
418	From Area	UX; UY; UZ; RX; RY; RZ
419	From Area	UX; UY; UZ; RX; RY; RZ
387	From Area	UX; UY; UZ; RX; RY; RZ
399	From Area	UX; UY; UZ; RX; RY; RZ
425	From Area	UX; UY; UZ; RX; RY; RZ
424	From Area	UX; UY; UZ; RX; RY; RZ
422	From Area	UX; UY; UZ; RX; RY; RZ
420	From Area	UX; UY; UZ; RX; RY; RZ
388	From Area	UX; UY; UZ; RX; RY; RZ

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
389	From Area	UX; UY; UZ; RX; RY; RZ
390	From Area	UX; UY; UZ; RX; RY; RZ
391	From Area	UX; UY; UZ; RX; RY; RZ
392	From Area	UX; UY; UZ; RX; RY; RZ
393	From Area	UX; UY; UZ; RX; RY; RZ
406	From Area	UX; UY; UZ; RX; RY; RZ
407	From Area	UX; UY; UZ; RX; RY; RZ
409	From Area	UX; UY; UZ; RX; RY; RZ
410	From Area	UX; UY; UZ; RX; RY; RZ
411	From Area	UX; UY; UZ; RX; RY; RZ
394	From Area	UX; UY; UZ; RX; RY; RZ
414	From Area	UX; UY; UZ; RX; RY; RZ
395	From Area	UX; UY; UZ; RX; RY; RZ
396	From Area	UX; UY; UZ; RX; RY; RZ
430	From Area	UX; UY; UZ; RX; RY; RZ
401	From Area	UX; UY; UZ; RX; RY; RZ
398	From Area	UX; UY; UZ; RX; RY; RZ
433	From Area	UX; UY; UZ; RX; RY; RZ
397	From Area	UX; UY; UZ; RX; RY; RZ
428	From Area	UX; UY; UZ; RX; RY; RZ
426	From Area	UX; UY; UZ; RX; RY; RZ
435	From Area	UX; UY; UZ; RX; RY; RZ
434	From Area	UX; UY; UZ; RX; RY; RZ
400	From Area	UX; UY; UZ; RX; RY; RZ
402	From Area	UX; UY; UZ; RX; RY; RZ
403	From Area	UX; UY; UZ; RX; RY; RZ
448	From Area	UX; UY; UZ; RX; RY; RZ
444	From Area	UX; UY; UZ; RX; RY; RZ
440	From Area	UX; UY; UZ; RX; RY; RZ
427	From Area	UX; UY; UZ; RX; RY; RZ
412	From Area	UX; UY; UZ; RX; RY; RZ
413	From Area	UX; UY; UZ; RX; RY; RZ
438	From Area	UX; UY; UZ; RX; RY; RZ
439	From Area	UX; UY; UZ; RX; RY; RZ
436	From Area	UX; UY; UZ; RX; RY; RZ
441	From Area	UX; UY; UZ; RX; RY; RZ
404	From Area	UX; UY; UZ; RX; RY; RZ
405	From Area	UX; UY; UZ; RX; RY; RZ
408	From Area	UX; UY; UZ; RX; RY; RZ
421	From Area	UX; UY; UZ; RX; RY; RZ
423	From Area	UX; UY; UZ; RX; RY; RZ
429	From Area	UX; UY; UZ; RX; RY; RZ
431	From Area	UX; UY; UZ; RX; RY; RZ
437	From Area	UX; UY; UZ; RX; RY; RZ
442	From Area	UX; UY; UZ; RX; RY; RZ
443	From Area	UX; UY; UZ; RX; RY; RZ

Table 3.1 - Joint Assignments - Summary (continued)

UniqueName	Diaphragm	Restraints
446	From Area	UX; UY; UZ; RX; RY; RZ
445	From Area	UX; UY; UZ; RX; RY; RZ
447	From Area	UX; UY; UZ; RX; RY; RZ
450	From Area	UX; UY; UZ; RX; RY; RZ
449	From Area	UX; UY; UZ; RX; RY; RZ

3.2 Frame Assignments

Table 3.2 - Frame Assignments - Summary

UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Min Number Stations
B56	Beam	1.9167	2B-2	2B-2		3
B62	Beam	12.9167	2B-2	2B-2		3
B33	Beam	24	2B-9	2B-9		3
B1	Beam	12	2B-20	2B-20		3
B2	Beam	25.6667	TB-2	TB-2		3
B3	Beam	13.8333	2B-23	2B-23		3
B5	Beam	15.8229	2B-10	2B-10		3
B52	Beam	15.8333	2B-6	2B-6		3
B59	Beam	15.8333	2B-1	2B-1		3
B58	Beam	15.8333	2B-11	2B-11		3
B64	Beam	25.6667	TB-2	TB-2		3
B65	Beam	13.8333	2B-24	2B-24		3
B63	Beam	12	2B-20	2B-20		3
B60	Beam	14.8333	2B-3	2B-3		3
B55	Beam	6.3333	2B-19	2B-19		3
B36	Beam	22.0833	HSS8X6X3/8	N/A		3
B7	Beam	16.7396	2B-14	2B-14		3
B4	Beam	15.8229	2B-12	2B-12		3
B9	Beam	15.8333	2B-43	2B-43		3
B14	Beam	17.6667	2B-7	2B-7		3
B24	Beam	19.5	TB-1	TB-1		3
B32	Beam	20.6667	2B-8	2B-8		3
B38	Beam	15.8333	8CMU-W	8CMU-W		3
B40	Beam	3.6667	TB-1	TB-1		3
B46	Beam	17.6667	2B-7	2B-7		3
B53	Beam	8	2B-19	2B-19		3
B43	Beam	12	2B-18	2B-18		3
B47	Beam	17.75	2B-4	2B-4		3
B27	Beam	14.3333	2B-17	2B-17		3
B10	Beam	12	2B-16	2B-16		3
B16	Beam	18	2B-4	2B-4		3
B12	Beam	2.3333	2B-16	2B-16		3
B18	Beam	20.3333	2B-15	2B-15		3
B50	Beam	20.6667	2B-15	2B-15		3
B6	Beam	16.7396	2B-13	2B-13		3

Table 3.2 - Frame Assignments - Summary (continued)

UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Min Number Stations
B30	Beam	20.6667	2B-5	2B-5		3
B20	Beam	5.25	2B-45	2B-45		3
B19	Beam	5.6667	2B-44	2B-44		3
B21	Beam	5.25	2B-45	2B-45		3
B8	Beam	2.6666	2B-22	2B-22		3
B15	Beam	19.6667	2B-22	2B-22		3
B26	Beam	2.6667	2B-22	2B-22		3
B42	Beam	2.6666	2B-21	2B-21		3
B51	Beam	19.6667	2B-21	2B-21		3
B57	Beam	2.6667	2B-21	2B-21		3
B34	Beam	17.6667	2B-38	2B-38		3
B37	Beam	11	2B-37	2B-37		3
B29	Beam	11	2B-37	2B-37		3
W19-W	Beam	3	8CMU-W	8CMU-W		3
W47-W	Beam	3	8CMU-W	8CMU-W		3
W23-W	Beam	15.8333	8CMU-W	8CMU-W		3
W50-W	Beam	2.1667	8CW-W	8CW-W		3
W56-W	Beam	0.8333	8CW-W	8CW-W		3
W68-W	Beam	2.1667	8CW-W	8CW-W		3
W75-W	Beam	0.8333	8CW-W	8CW-W		3
W67-W	Beam	2.1667	8CW-W	8CW-W		3
W69-W	Beam	0.8333	8CW-W	8CW-W		3
W3-W	Beam	6.4167	8CMU-W	8CMU-W		3
W4-W	Beam	6.1667	8CMU-W	8CMU-W		3
W6-W	Beam	7.0833	8CMU-W	8CMU-W		3
W8-W	Beam	2.4896	8CMU-W	8CMU-W		3
W12-W	Beam	1.5833	8CMU-W	8CMU-W		3
W13-W	Beam	5.5	8CMU-W	8CMU-W		3
W14-W	Beam	3.75	8CMU-W	8CMU-W		3
W17-W	Beam	2	8CMU-W	8CMU-W		3
W24-W	Beam	1.1667	8CMU-W	8CMU-W		3
W29-W	Beam	4	8CMU-W	8CMU-W		3
W35-W	Beam	4.3334	8CMU-W	8CMU-W		3
W37-W	Beam	1.1667	8CMU-W	8CMU-W		3
W54-W	Beam	5.5833	8CMU-W	8CMU-W		3
W52-W	Beam	4.6667	8CMU-W	8CMU-W		3
W53-W	Beam	2.25	8CW-W	8CW-W		3
W60-W	Beam	2.5	8CW-W	8CW-W		3
W74-W	Beam	8.8333	8CW-W	8CW-W		3
W71-W	Beam	7	8CW-W	8CW-W		3
W57-W	Beam	4	8CW-W	8CW-W		3
W61-W	Beam	1.25	8CW-W	8CW-W		3
W42-W	Beam	4	8CW-W	8CW-W		3
W40-W	Beam	0.5833	8CW-W	8CW-W		3

Table 3.2 - Frame Assignments - Summary (continued)

UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Min Number Stations
W26-W	Beam	3.9999	8CW-W	8CW-W		3
W28-W	Beam	0.5833	8CW-W	8CW-W		3
W16-W	Beam	3.9999	8CW-W	8CW-W		3
W11-W	Beam	2.1667	8CW-W	8CW-W		3
123	Column	14	C2	N/A	90	3
124	Column	14	C4	N/A		3
125	Column	14	C12	N/A		3
126	Column	14	C18	N/A	90	3
127	Column	14	C20	N/A		3
128	Column	14	C24	N/A	90	3
129	Column	14	C30	N/A	90	3
130	Column	14	C34	N/A	90	3
131	Column	14	C36	N/A	90	3
132	Column	14	C48	N/A	90	3
133	Column	14	C64	N/A	90	3
134	Column	14	C66	N/A	90	3
135	Column	14	C68	N/A	90	3
136	Column	14	C70	N/A	90	3
137	Column	14	C72	N/A		3
138	Column	14	C74	N/A		3
139	Column	14	C83	N/A		3
140	Column	14	C90	N/A	90	3
141	Column	14	C92	N/A		3
142	Column	14	C135	N/A	90	3
143	Column	14	C133	N/A		3
144	Column	14	C50	N/A		3
145	Column	14	C105	N/A		3
146	Column	14	C127	N/A		3
147	Column	14	C200	N/A		3
148	Column	14	C205	N/A		3
WW1	Null	2.25		N/A		3
WW2	Null	18		N/A		3
WW5	Null	4.0833		N/A		3
WW7	Null	6.6667		N/A		3
WW10	Null	3.3333		N/A		3
WW30	Null	4		N/A		3
WW34	Null	4		N/A		3
WW51	Null	1.3333		N/A		3
WW55	Null	2		N/A		3
WW59	Null	2.4167		N/A		3
WW65	Null	2.0833		N/A		3
WW70	Null	3.3333		N/A		3
WW72	Null	5.6667		N/A		3
WW73	Null	5.6667		N/A		3

Table 3.2 - Frame Assignments - Summary (continued)

UniqueName	Design Type	Length ft	Analysis Section	Design Section	Axis Angle deg	Min Number Stations
WW76	Null	15.8333		N/A		3
WW45	Null	2.3333		N/A		3
WW31	Null	2.3333		N/A		3
WW62	Null	2.3333		N/A		3
WW15	Null	2		N/A		3
WW9	Null	2		N/A		3
WW46	Null	2.3333		N/A		3
WW32	Null	2.3333		N/A		3
WW63	Null	2.3333		N/A		3
WW64	Null	2.3333		N/A		3
WW58	Null	2.3333		N/A		3
WW49	Null	2.3333		N/A		3
WW39	Null	2.3333		N/A		3
WW33	Null	2.3333		N/A		3
WW27	Null	2.3333		N/A		3
WW66	Null	3.3333		N/A		3
WW25	Null	3.6667		N/A		3
WW48	Null	1.75		N/A		3
WW41	Null	1.75		N/A		3
WW43	Null	1		N/A		3
WW44	Null	1		N/A		3
WW18	Null	1.75		N/A		3
WW22	Null	1.75		N/A		3
WW20	Null	1		N/A		3
WW21	Null	1		N/A		3

3.3 Shell Assignments

Table 3.3 - Area Assignments - Summary

UniqueName	Section Property	Property Type	Modifiers
F73	Slab8	Slab	
F59	Slab8	Slab	
F15	Slab8	Slab	
F26	Slab8	Slab	
F45	Slab8	Slab	
F43	Slab8	Slab	
F75	Slab8	Slab	
F35	Slab8	Slab	
F48	Slab8	Slab	
ColC2	Col_{Stiff}	Slab	
ColC4	Col_{Stiff}	Slab	
ColC12	Col_{Stiff}	Slab	
ColC18	Col_{Stiff}	Slab	
ColC20	Col_{Stiff}	Slab	

Table 3.3 - Area Assignments - Summary (continued)

UniqueName	Section Property	Property Type	Modifiers
ColC24	Col_{Stiff}	Slab	
ColC30	Col_{Stiff}	Slab	
ColC34	Col_{Stiff}	Slab	
ColC36	Col_{Stiff}	Slab	
ColC48	Col_{Stiff}	Slab	
ColC64	Col_{Stiff}	Slab	
ColC66	Col_{Stiff}	Slab	
ColC68	Col_{Stiff}	Slab	
ColC70	Col_{Stiff}	Slab	
ColC72	Col_{Stiff}	Slab	
ColC74	Col_{Stiff}	Slab	
ColC83	Col_{Stiff}	Slab	
ColC90	Col_{Stiff}	Slab	
ColC92	Col_{Stiff}	Slab	
ColC135	Col_{Stiff}	Slab	
ColC133	Col_{Stiff}	Slab	
ColC50	Col_{Stiff}	Slab	
ColC105	Col_{Stiff}	Slab	
ColC127	Col_{Stiff}	Slab	
ColC200	Col_{Stiff}	Slab	
ColC205	Col_{Stiff}	Slab	
38	WW1	Wall	Yes
39	WW2	Wall	Yes
40	WW5	Wall	Yes
41	WW7	Wall	Yes
42	WW10	Wall	Yes
43	WW19	Wall	Yes
44	WW30	Wall	Yes
45	WW34	Wall	Yes
46	WW47	Wall	Yes
47	WW51	Wall	Yes
48	WW55	Wall	Yes
49	WW59	Wall	Yes
50	WW65	Wall	Yes
51	WW70	Wall	Yes
52	WW72	Wall	Yes
53	WW73	Wall	Yes
54	WW76	Wall	Yes
55	WW45	Wall	Yes
56	WW31	Wall	Yes
57	WW62	Wall	Yes
58	WW15	Wall	Yes
59	WW9	Wall	Yes
60	WW17	Wall	Yes
61	WW46	Wall	Yes

Table 3.3 - Area Assignments - Summary (continued)

UniqueName	Section Property	Property Type	Modifiers
62	WW32	Wall	Yes
63	WW63	Wall	Yes
64	WW64	Wall	Yes
65	WW58	Wall	Yes
66	WW49	Wall	Yes
67	WW39	Wall	Yes
68	WW33	Wall	Yes
69	WW27	Wall	Yes
70	WW66	Wall	Yes
71	WW38	Wall	Yes
72	WW36	Wall	Yes
73	WW23	Wall	Yes
74	WW25	Wall	Yes
75	WW48	Wall	Yes
76	WW41	Wall	Yes
77	WW43	Wall	Yes
78	WW44	Wall	Yes
79	WW18	Wall	Yes
80	WW22	Wall	Yes
81	WW20	Wall	Yes
82	WW21	Wall	Yes
A4	None	Opening	
A3	None	Opening	

4 Loads

This chapter provides loading information as applied to the model.

4.1 Load Patterns

Table 4.1 - Load Pattern Definitions

Name	Is Auto Load	Type	Self Weight Multiplier
~LLRF	No	Other	0
Dead	No	Dead	1
Dead ABOVE	No	Dead	0
Live	No	Live	0
Live ABOVE	No	Live	0

4.2 Applied Loads

4.2.1 Point Loads

Table 4.2 - Joint Loads Assignments - Force

UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
4	Dead ABOVE	-3.837	-2.656	-15.178	13.2984	1.2185	8.2941	8	21
12	Dead ABOVE	0.93	-0.261	-1.453	0.0995	0.0079	-0.0005	0	0
16	Dead ABOVE	-3.184	-2.543	-28.914	-7.8303	-5.0063	1.8439	0	0
18	Dead ABOVE	0.134	0.842	-5.382	-4.4174	0.3922	-0.1562	8	16
20	Dead ABOVE	4.816	-0.397	-4.947	2.7922	27.1197	-0.5233	24	8
34	Dead ABOVE	-0.035	-2.771	-2.312	6.9582	0.6436	0.2259	8	16
36	Dead ABOVE	0	0	-26.374	1.9496	-0.6023	0	0	0
38	Dead ABOVE	3.24	2.603	-11.869	-2.6412	2.6919	0.1336	0	0
40	Dead ABOVE	2.038	-7.402	-1.164	1.771	0.3876	6.702	0	0
42	Dead ABOVE	1.516	0	-0.348	0.2953	-0.1686	1.2867	0	0
44	Dead ABOVE	0.299	0	-0.069	0.1108	-0.1625	0.4828	0	0
46	Dead ABOVE	0.146	0	-0.034	0.0804	-0.1588	0.3501	0	0
48	Dead ABOVE	0.452	-0.431	-1.337	-0.1981	0.354	-0.428	0	0
52	Dead ABOVE	-1.46	0.04	-0.998	-8.4619	-0.3499	-0.0485	0	0
54	Dead ABOVE	-1.666	0.146	-2.737	-5.1703	-1.1888	0.1232	0	0
58	Dead ABOVE	-1.095	0.056	-3.524	-2.8943	-1.4203	0.0457	0	0
62	Dead ABOVE	-2.003	1.96	-15.707	-2.1683	10.2231	0.024	0	0
10	Dead ABOVE	-0.059	-0.004	-2.62	19.5861	2.255	-0.0028	0	0
14	Dead ABOVE	-0.086	-0.007	-1.732	13.8715	-1.763	0.0042	0	0
78	Dead ABOVE	0	-0.649	-0.15	-0.0883	-0.1721	0.7471	0	0
80	Dead ABOVE	0	-0.012	-0.003	-0.0526	-0.0686	0.2978	0	0
82	Dead ABOVE	-2.525	1.108	-8.534	0.5772	-0.1002	-0.0774	0	0
83	Dead ABOVE	4.852	0.183	2.323	-4.7804	20.577	0.2637	21	8
86	Dead ABOVE	-2.41	-2.322	-9.674	-1.3812	1.1015	0.0927	0	0
106	Dead ABOVE	3.531	0.133	6.119	-0.6194	-3.6508	0.0209	16	8
108	Dead ABOVE	3.964	-2.279	-23.734	0.095	-14.7177	-0.0077	0	0
110	Dead ABOVE	1.523	-0.554	-3.564	2.4573	-4.1643	-0.3695	16	8

Table 4.2 - Joint Loads Assignments - Force (continued)

UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
120	Dead ABOVE	-7.523	-0.103	-20.417	0.4677	-42.0197	-0.1352	16	8
124	Dead ABOVE	2.257	0.717	-2.849	-3.8206	-7.0399	0.3717	16	8
127	Dead ABOVE	-1.397	-3.643	-14.999	41.4234	-3.6611	-0.0827	8	21
128	Dead ABOVE	4.673	1.129	-25.084	-0.9414	7.8962	0.1113	0	0
133	Dead ABOVE	-6.761	14.22	-13.17	3.8322	6.587	1.1877	0	0
134	Dead ABOVE	1.753	-2.261	-13.453	3.4216	9.2165	0.0235	0	0
135	Dead ABOVE	-4.345	-0.336	-6.1	-13.6562	7.5729	8.0162	0	0
136	Dead ABOVE	3.559	3.208	-14.271	-2.7612	4.6917	-5.3117	0	0
137	Dead ABOVE	2.485	1.586	-17.68	-2.8494	-14.3015	-0.0767	0	0
138	Dead ABOVE	1.895	-1.346	-11.867	6.0927	-20.7214	-0.0923	0	0
141	Dead ABOVE	0.274	-2.7	-5.336	2.4989	1.1603	0.0285	0	0
142	Dead ABOVE	0.647	0.133	-5.232	3.5754	0.2948	-0.0748	0	0
147	Dead ABOVE	-0.293	-2.913	-5.584	2.7036	0.3729	0.0181	8	21
148	Dead ABOVE	-0.191	0.345	-7.689	0.0929	-0.6091	-0.1143	8	21
118	Dead ABOVE	0.038	-1.998	-12.822	3.0667	0.0672	-0.0216	8	16
163	Dead ABOVE	0.008	1.306	-15.298	1.5353	0.4292	0.0499	8	16
166	Dead ABOVE	1.397	0	-0.321	-0.2562	-0.057	-1.1164	0	0
105	Dead ABOVE	-0.394	-0.013	-18.894	-0.1478	0.3576	-0.0129	0	0
234	Dead ABOVE	0.224	0.592	12.146	1.3049	0.3622	-0.3346	8	16
236	Dead ABOVE	4.017	-0.346	0.064	3.3118	7.1578	-1.6423	8	16
240	Dead ABOVE	0.117	-3.637	5.294	6.096	1.3792	-0.2411	0	0
243	Dead ABOVE	-2.682	0.061	-6.152	-0.1526	0.7278	0.0756	0	0
244	Dead ABOVE	3.713	0.79	-0.375	-5.4935	8.5006	1.5853	8	16
248	Dead ABOVE	-0.608	3.104	7.379	-6.4676	1.2132	1.2536	0	0
249	Dead ABOVE	-6.738	0.353	-15.787	-0.5828	-4.6599	0.3143	0	0
258	Dead ABOVE	0.012	-2.151	-9.726	1.3237	0.0293	-0.0079	0	0
259	Dead ABOVE	1.885	0.116	-0.445	-0.2207	-8.1592	-0.1105	0	0
260	Dead ABOVE	0.014	4.88	-32.512	0.6842	-0.1639	-0.0896	8	16
265	Dead ABOVE	-0.414	3.231	-23.023	-12.4472	-1.4578	-0.452	8	16
99	Dead ABOVE	0.772	-0.123	-4.079	1.9021	-0.0853	0.2854	0	0
116	Dead ABOVE	-1.603	-0.098	-5.484	-8.3439	-1.6197	-0.2448	0	0
154	Dead ABOVE	0.043	-0.133	-2.279	-2.8901	-0.8078	0.3012	0	0
193	Dead ABOVE	-2.586	-0.166	-2.914	2.2809	-5.5931	-0.3181	0	0
197	Dead ABOVE	3.44	-12.485	-1.836	2.4948	-1.8157	10.6308	0	0
203	Dead ABOVE	-0.161	-1.084	-1.326	0.3691	3.5434	1.4591	0	0
210	Dead ABOVE	3.997	-0.67	-10.413	0.5429	5.8722	-0.3253	0	0
216	Dead ABOVE	6.835	4.218	11.02	3.4166	-8.126	1.3961	0	0
220	Dead ABOVE	0.077	0.856	-2.661	-0.6082	0.2895	0.0471	0	0
281	Dead ABOVE	6.01	1.058	2.264	-1.5524	-1.3673	-0.2993	0	0
283	Dead ABOVE	3.219	2.466	0.118	1.132	0.2715	0.6018	0	0
288	Dead ABOVE	4.311	5.49	-18.045	0.0779	2.6707	4.5993	0	0
292	Dead ABOVE	-0.775	0.049	-0.951	1.9958	-2.2479	-0.2289	0	0
294	Dead ABOVE	-3.528	0.097	-7.093	0.706	-6.8275	0.5069	0	0
295	Dead ABOVE	-2.551	0.286	6.838	-1.8663	-1.1411	-0.533	0	0

Table 4.2 - Joint Loads Assignments - Force (continued)

UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
297	Dead ABOVE	-5.161	-0.086	-15.099	0.2038	-7.7231	0.0258	0	0
206	Dead ABOVE	-2.882	-0.001	-0.484	-0.517	-0.2751	-0.0117	0	0
311	Dead ABOVE	-0.051	0.243	-6.055	1.1249	-9.8201	-0.0161	0	0
312	Dead ABOVE	0	0	-4.763	-0.1102	-3.9091	0	0	0
P561	Dead ABOVE	-0.556	-0.281	-10.704	-18.6211	-0.4344	0.0147	0	0
P562	Dead ABOVE	-2.655	-0.254	-10.071	-9.3696	-0.438	0.005	0	0
P563	Dead ABOVE	-1.948	-0.388	-9.634	-18.6728	-0.6788	-0.0251	0	0
P564	Dead ABOVE	-1.462	0.14	-8.633	0.2604	-0.9797	-0.0122	0	0
P565	Dead ABOVE	-3.212	0.033	-7.958	1.997	-0.6129	-0.007	0	0
P566	Dead ABOVE	-2.649	0.064	-7.894	17.5072	-0.6697	0.0117	0	0
P567	Dead ABOVE	0.127	-0.587	-2.83	5.3143	-1.8386	0.0249	0	0
P568	Dead ABOVE	-0.667	-0.698	-0.581	-14.6251	0.3811	0.0002	0	0
P569	Dead ABOVE	-2.568	-0.708	-0.202	2.7323	6.603	-0.008	0	0
P570	Dead ABOVE	0.936	-0.053	1.657	-0.0666	1.0165	-0.4765	0	0
P571	Dead ABOVE	-0.047	0.482	0.875	0.7891	7.8865	-0.0165	0	0
P572	Dead ABOVE	1.57	0.42	-0.491	10.5126	-1.2792	0.9391	0	0
P573	Dead ABOVE	-0.782	0.098	-6.324	15.539	0.554	-4.0347	0	0
P574	Dead ABOVE	-2.165	0.626	-0.637	5.4027	1.5756	-0.0035	0	0
P575	Dead ABOVE	-2.665	0.848	-0.404	7.0681	-1.9681	0.0854	0	0
P576	Dead ABOVE	-2.568	0.71	-1.658	0.2762	-1.6583	0.0251	0	0
P577	Dead ABOVE	0.194	-0.058	-0.237	-2.1897	0.1008	-0.0482	0	0
P578	Dead ABOVE	0.528	0.056	-0.37	1.9268	0.2843	0.073	0	0
P579	Dead ABOVE	0.473	0.064	1.821	1.7877	0.6643	-0.0689	0	0
P580	Dead ABOVE	-0.242	-0.007	-2.534	16.6243	-1.207	0.0176	0	0
P581	Dead ABOVE	-0.532	0.007	1.546	14.7784	0.1193	0.0112	0	0
P582	Dead ABOVE	-0.516	-0.003	1.675	7.611	0.0369	0.0065	0	0
P583	Dead ABOVE	-0.442	-0.027	0.562	17.4399	0.0481	0.0145	0	0
P584	Dead ABOVE	-0.236	-0.002	-0.012	1.4766	0.0725	0.0033	0	0
P585	Dead ABOVE	-0.139	0.012	1.085	-2.2763	-0.0312	-0.0194	0	0
P586	Dead ABOVE	-0.152	0.009	0.829	-16.8896	0.0624	-0.0405	0	0
P587	Dead ABOVE	-0.212	0.008	0.548	-1.853	0.0043	-0.0104	0	0
P588	Dead ABOVE	0.122	-0.005	-6.868	-16.2587	0.9493	-0.0015	0	0
P589	Dead ABOVE	0.086	0.006	0.614	-1.5482	-0.4699	0.0073	0	0
P590	Dead ABOVE	0.25	-0.113	-8.517	-0.0007	-0.4106	0.0258	0	0
P591	Dead ABOVE	-0.027	0.01	2.269	1.5553	1.7031	-0.0021	0	0
P592	Dead ABOVE	-0.054	-0.012	1.208	1.01	8.2102	0.0151	0	0
P593	Dead ABOVE	-0.053	0.034	1.95	-1.3615	-2.4821	0.0116	0	0
P594	Dead ABOVE	0.033	0.039	1.032	-11.44	2.6637	-0.1011	0	0
P595	Dead ABOVE	0.023	0.171	1.621	-20.3697	4.7034	0.4283	0	0
P596	Dead ABOVE	0.018	-0.02	0.921	-0.8987	2.4667	0.0047	0	0
P597	Dead ABOVE	0.259	-0.002	-4.255	-6.8651	0.2939	-0.0025	0	0
P598	Dead ABOVE	0.231	-0.003	-4.331	-5.3533	0.149	0.0048	0	0
P599	Dead ABOVE	-0.776	0.052	-0.499	-5.2121	-0.764	-0.0559	0	0
P600	Dead ABOVE	0.096	-0.02	-3.993	-3.1516	0.5052	0.0555	0	0

Table 4.2 - Joint Loads Assignments - Force (continued)

UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
P601	Dead ABOVE	0.085	0.03	-5.543	-1.5379	0.9349	0.0085	0	0
P602	Dead ABOVE	-0.0004163	0.002	-10.797	3.5244	2.4749	2.303E-05	0	0
P603	Dead ABOVE	1.328	0.002	0.305	-0.0576	0.9556	0.2513	0	0
P604	Dead ABOVE	0.735	-0.006	0.169	-0.0531	0.796	0.2306	0	0
P605	Dead ABOVE	0.529	-0.014	0.122	-0.1083	0.6249	0.4705	0	0
P606	Dead ABOVE	0.21	-0.011	0.048	-0.1092	0.4515	0.4731	0	0
P607	Dead ABOVE	0.073	0.154	-0.036	0.0486	-0.0218	-0.0942	0	0
P608	Dead ABOVE	0.041	0.051	-0.012	0.0511	-0.0278	-0.12	0	0
P609	Dead ABOVE	-0.006	0.006	-0.001	0.0527	-0.0173	-0.0747	0	0
P610	Dead ABOVE	0.103	0.124	-0.029	0.0456	0.0462	0.2003	0	0
P611	Dead ABOVE	0.053	0.071	-0.016	0.0497	-0.0344	-0.1489	0	0
P612	Dead ABOVE	-0.004	0.003	-0.001	0.0519	-0.0266	-0.1152	0	0
P613	Dead ABOVE	0.033	0.001	-0.008	0.0283	-0.1571	0.1227	0	0
P614	Dead ABOVE	-0.072	0.001	0.017	0.0227	-0.1662	0.0985	0	0
P615	Dead ABOVE	0.019	-0.129	-0.03	-0.078	-0.0466	0.2006	0	0
P616	Dead ABOVE	1.211	0.034	0.278	0.0262	0.4924	-0.1146	0	0
P617	Dead ABOVE	0.902	0.012	0.207	0.038	0.6907	-0.1653	0	0
P618	Dead ABOVE	1.032	-0.003	0.237	0.0338	0.914	-0.1471	0	0
4	Live ABOVE	-2.312	-1.517	-3.977	4.0469	0.3748	2.498	8	21
12	Live ABOVE	1.207	-0.719	-1.644	0.0067	0.002	-0.0913	0	0
16	Live ABOVE	0.431	0.593	-10.657	-1.2835	-1.8099	-0.1655	0	0
18	Live ABOVE	0.043	0.336	0.276	-1.3361	0.1364	-0.0543	8	16
20	Live ABOVE	1.838	-0.087	0.861	0.5946	8.2993	-0.1145	24	8
34	Live ABOVE	0.03	-0.907	1.136	1.9734	0.1967	0.0795	8	16
36	Live ABOVE	0	0	-10.193	0.9907	-0.1496	0	0	0
38	Live ABOVE	1.395	1.011	-5.171	-1.1037	0.9654	0.0296	0	0
40	Live ABOVE	1.831	-2.235	-1.151	0.4661	0.1102	1.7356	0	0
42	Live ABOVE	0.561	0	-0.129	0.0988	-0.0518	0.4307	0	0
44	Live ABOVE	0.141	0	-0.032	0.0362	-0.0458	0.1577	0	0
46	Live ABOVE	0.087	0	-0.02	0.0214	-0.0432	0.0934	0	0
48	Live ABOVE	0.923	0.545	-1.583	-0.1246	0.097	-0.4238	0	0
52	Live ABOVE	-0.558	0.012	0.048	-2.5995	-0.1072	-0.0146	0	0
54	Live ABOVE	-0.555	0.045	-0.39	-1.552	-0.2684	0.0376	0	0
58	Live ABOVE	-0.244	0.018	-0.628	-1.1265	-0.383	0.0146	0	0
62	Live ABOVE	-0.401	0.405	-3.118	-0.3682	0.5825	-0.0074	0	0
10	Live ABOVE	-0.014	-0.001	-0.008	7.1052	0.2557	-0.0008	0	0
14	Live ABOVE	-0.02	-0.002	-0.012	4.8077	-0.3187	0.0012	0	0
78	Live ABOVE	0	-0.182	-0.042	-0.0262	-0.0469	0.2036	0	0
80	Live ABOVE	0	-0.024	-0.005	-0.0141	-0.0123	0.0534	0	0
82	Live ABOVE	-0.483	0.182	-0.098	0.0739	0.332	-0.0167	0	0
83	Live ABOVE	1.884	0.028	2.928	-1.094	6.3553	0.0409	21	8
86	Live ABOVE	-0.424	-0.563	-0.538	-0.2784	0.6795	0.0195	0	0
106	Live ABOVE	0.011	0.13	-0.335	-0.7809	-1.1923	0.1193	16	8
108	Live ABOVE	0.463	-0.786	-7.472	-0.283	-3.9417	-0.018	0	0

Table 4.2 - Joint Loads Assignments - Force (continued)

UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
110	Live ABOVE	0.563	-0.235	-0.226	1.2237	1.1136	-0.1962	16	8
120	Live ABOVE	-2.797	-0.122	-7.504	0.7013	-11.1548	-0.1474	16	8
124	Live ABOVE	0.756	0.266	-0.077	-1.4734	0.7535	0.2018	16	8
127	Live ABOVE	-0.111	-0.859	-3.515	10.0995	-0.7131	0.0223	8	21
128	Live ABOVE	0.512	0.526	-7.984	-0.2127	1.8879	0.0346	0	0
133	Live ABOVE	-4.148	4.73	-5.348	1.3902	1.9283	-0.1904	0	0
134	Live ABOVE	0.416	-0.684	-4.898	0.4659	2.9837	0.0073	0	0
135	Live ABOVE	-2.813	-0.482	-2.407	-4.2656	2.2909	2.7448	0	0
136	Live ABOVE	0.17	1.533	-4.309	-1.072	1.4797	-1.2931	0	0
137	Live ABOVE	-0.045	0.03	-1.913	0.8792	-5.1038	-0.024	0	0
138	Live ABOVE	-0.238	0.055	-0.266	0.1288	-7.2249	0.0075	0	0
141	Live ABOVE	-0.074	-0.297	0.249	0.6347	-0.1299	0.0077	0	0
142	Live ABOVE	0.049	0.008	-0.125	0.6135	-0.2148	-0.0157	0	0
147	Live ABOVE	-0.096	-0.433	-0.638	0.5955	-0.109	-0.0109	8	21
148	Live ABOVE	-0.066	-0.129	-1.367	0.3022	-0.251	-0.0166	8	21
118	Live ABOVE	-0.088	-0.224	-1.869	-0.1461	-0.1518	0.0069	8	16
163	Live ABOVE	-0.026	0.795	-7.617	-0.4711	0.0505	0.0168	8	16
166	Live ABOVE	0.561	0	-0.129	-0.0867	-0.0163	-0.378	0	0
105	Live ABOVE	-0.154	-0.004	-4.009	-0.0541	0.1279	-0.0042	0	0
234	Live ABOVE	-0.091	-0.223	0.076	2.5875	-0.3384	-0.0188	8	16
236	Live ABOVE	1.452	-0.473	-1.393	2.0865	2.1673	-0.6647	8	16
240	Live ABOVE	0.026	-1.922	0.39	3.4364	0.3005	-0.0538	0	0
243	Live ABOVE	-1.269	0.059	-3.038	-0.0528	0.1377	0.0249	0	0
244	Live ABOVE	1.239	0.677	-1.303	-3.0799	2.5046	0.5268	8	16
248	Live ABOVE	-0.312	1.003	2.245	-2.4708	0.3526	0.3625	0	0
249	Live ABOVE	-1.906	0.108	-4.438	-0.1717	-1.5773	0.0927	0	0
258	Live ABOVE	-0.034	-0.505	-2.209	0.1903	-0.1531	0.0395	0	0
259	Live ABOVE	0.373	0.059	-0.244	-0.0722	-0.4304	-0.036	0	0
260	Live ABOVE	-0.127	1.773	-12.084	-0.7135	-0.2545	-0.0345	8	16
265	Live ABOVE	-0.238	0.347	-3.79	-1.5327	-0.5653	-0.1185	8	16
99	Live ABOVE	0.301	-0.038	-0.82	0.4858	0.1136	0.0832	0	0
116	Live ABOVE	-0.194	-0.026	-0.702	-3.1619	-0.1209	-0.068	0	0
154	Live ABOVE	-0.151	-0.042	0.059	-1.0827	-0.367	0.093	0	0
193	Live ABOVE	-0.789	-0.05	-0.883	0.6903	-1.3226	-0.0957	0	0
197	Live ABOVE	1.788	-3.66	-1.436	0.7469	-0.3096	3.169	0	0
203	Live ABOVE	0.295	-0.368	0.395	0.1543	1.5077	0.4574	0	0
210	Live ABOVE	1.233	-0.086	-3.216	0.1312	1.8007	-0.0768	0	0
216	Live ABOVE	1.717	0.442	2.604	0.6373	-3.1717	0.3457	0	0
220	Live ABOVE	0.018	-0.06	-0.319	-0.069	0.0087	0.011	0	0
281	Live ABOVE	2.623	0.193	0.212	-0.468	-0.5286	-0.0559	0	0
283	Live ABOVE	1.154	0.746	-0.074	0.2796	-0.1936	0.185	0	0
288	Live ABOVE	1.148	0.985	-5.168	0.0573	0.4949	1.0641	0	0
292	Live ABOVE	-0.762	0.012	1.248	0.6293	-1.3003	-0.0677	0	0
294	Live ABOVE	-0.848	0.031	-1.673	0.1883	-1.5914	0.1562	0	0

Table 4.2 - Joint Loads Assignments - Force (continued)

UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
295	Live ABOVE	-0.826	0.087	2.106	-0.5331	-0.7627	-0.1635	0	0
297	Live ABOVE	-0.847	-0.021	-2.177	0.0998	-1.5681	0.0143	0	0
206	Live ABOVE	-0.547	-0.001	-0.219	-0.1633	-0.0772	-0.002	0	0
311	Live ABOVE	-0.016	-0.038	-0.896	-0.0451	-2.0673	-0.0048	0	0
312	Live ABOVE	0	0	-0.859	0.3005	-0.7815	0	0	0
P561	Live ABOVE	0.144	-0.086	-1.66	-5.0085	-0.0733	0.0042	0	0
P562	Live ABOVE	-0.45	-0.077	-1.432	-2.5213	-0.0903	0.0011	0	0
P563	Live ABOVE	-0.278	-0.122	-1.163	-5.0297	-0.1622	-0.008	0	0
P564	Live ABOVE	-0.193	0.033	-1.019	0.0638	-0.2397	-0.0027	0	0
P565	Live ABOVE	-0.636	0.012	-0.783	0.5922	-0.118	-0.0016	0	0
P566	Live ABOVE	-0.454	0.03	-0.614	5.139	-0.1453	0.0035	0	0
P567	Live ABOVE	0.303	-0.165	-0.41	0.7368	-0.3754	0.0075	0	0
P568	Live ABOVE	-0.156	-0.208	-0.053	-5.4186	0.0051	-2.767E-05	0	0
P569	Live ABOVE	-0.964	-0.212	-0.021	0.8194	1.3204	-0.0027	0	0
P570	Live ABOVE	0.337	0.095	0.505	-0.032	0.4059	-0.1097	0	0
P571	Live ABOVE	-0.015	-0.074	0.149	0.2835	1.6154	-0.0045	0	0
P572	Live ABOVE	0.537	0.126	-0.236	2.4204	0.0813	0.2303	0	0
P573	Live ABOVE	-0.114	0.043	-2.02	4.4936	0.2215	-1.1269	0	0
P574	Live ABOVE	-0.901	0.187	0.015	1.6548	0.137	-0.0011	0	0
P575	Live ABOVE	-0.817	0.26	-0.229	2.1034	-0.3533	0.0261	0	0
P576	Live ABOVE	-0.569	0.228	-0.08	0.268	-0.0916	0.0077	0	0
P577	Live ABOVE	0.041	-0.012	-0.219	-0.7456	0.0323	-0.0102	0	0
P578	Live ABOVE	0.111	0.012	-0.268	0.6354	0.0855	0.0154	0	0
P579	Live ABOVE	0.098	0.014	0.48	0.6436	0.1988	-0.0143	0	0
P580	Live ABOVE	-0.043	0.000253	-0.776	4.553	-0.3626	0.0032	0	0
P581	Live ABOVE	-0.102	0.003	0.428	4.0588	0.0354	0.002	0	0
P582	Live ABOVE	-0.106	-0.0003172	0.459	2.1154	0.0091	0.0013	0	0
P583	Live ABOVE	-0.096	-0.006	0.156	4.7236	0.005	0.0033	0	0
P584	Live ABOVE	-0.052	-0.0004142	-0.047	0.3944	0.0199	0.0007	0	0
P585	Live ABOVE	-0.03	0.003	0.291	-0.6891	-0.0083	-0.0041	0	0
P586	Live ABOVE	-0.032	0.002	0.231	-4.964	0.007	-0.0086	0	0
P587	Live ABOVE	-0.046	0.002	0.12	-0.5401	0.0014	-0.0022	0	0
P588	Live ABOVE	-0.002	-0.001	-1.092	-4.5412	0.0991	-0.0002	0	0
P589	Live ABOVE	0.001	0.002	0.263	0.1011	-0.1815	0.0018	0	0
P590	Live ABOVE	0.064	-0.031	-1.851	0.3575	-0.0845	0.0071	0	0
P591	Live ABOVE	0.006	0.003	0.497	0.49	0.655	-0.0009	0	0
P592	Live ABOVE	-0.022	-0.001	0.264	0.3161	2.7344	-0.0083	0	0
P593	Live ABOVE	-0.015	0.01	0.509	-0.3075	-0.9126	0.0027	0	0
P594	Live ABOVE	0.002	0.012	0.449	-2.7217	0.1708	-0.024	0	0
P595	Live ABOVE	-0.004	0.048	0.405	-5.9432	1.4275	0.1209	0	0
P596	Live ABOVE	0.004	-0.006	0.209	-0.2693	0.7668	0.001	0	0
P597	Live ABOVE	0.102	-0.001	-0.54	-2.076	-0.0349	-0.0004	0	0
P598	Live ABOVE	0.086	-0.001	-0.523	-1.6153	-0.0027	0.0016	0	0
P599	Live ABOVE	-0.26	0.016	0.086	-1.5676	-0.1611	-0.017	0	0

Table 4.2 - Joint Loads Assignments - Force (continued)

UniqueName	Load Pattern	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft	MZ kip-ft	X Dimension in	Y Dimension in
P600	Live ABOVE	0.024	-0.006	-0.408	-1.0435	0.094	0.018	0	0
P601	Live ABOVE	0.023	0.01	-0.731	-0.5251	0.1407	0.0027	0	0
P602	Live ABOVE	-0.0001316	0.001	-2.986	2.566	0.6871	8.357E-06	0	0
P603	Live ABOVE	0.46	0.000209	0.106	-0.0294	0.2734	0.1278	0	0
P604	Live ABOVE	0.209	-0.003	0.048	-0.0272	0.2322	0.1182	0	0
P605	Live ABOVE	0.121	-0.005	0.028	-0.0384	0.185	0.1669	0	0
P606	Live ABOVE	-0.018	-0.003	-0.004	-0.0364	0.1353	0.1578	0	0
P607	Live ABOVE	0.025	0.043	-0.01	0.0131	-0.0047	-0.0202	0	0
P608	Live ABOVE	0.017	0.017	-0.004	0.0136	-0.0066	-0.0282	0	0
P609	Live ABOVE	0.003	0.007	-0.002	0.0138	-0.0047	-0.0203	0	0
P610	Live ABOVE	0.032	0.035	-0.008	0.0124	0.0134	0.0579	0	0
P611	Live ABOVE	0.021	0.022	-0.005	0.0133	-0.0086	-0.037	0	0
P612	Live ABOVE	0.004	0.006	-0.001	0.0136	-0.007	-0.0305	0	0
P613	Live ABOVE	0.054	-0.0003387	-0.012	0.012	-0.0419	0.0523	0	0
P614	Live ABOVE	0.058	0.001	-0.013	0.0017	-0.0434	0.0075	0	0
P615	Live ABOVE	0.005	-0.038	-0.009	-0.0223	-0.0117	0.0502	0	0
P616	Live ABOVE	0.309	0.01	0.071	0.0089	0.1436	-0.039	0	0
P617	Live ABOVE	0.245	0.004	0.056	0.0172	0.1988	-0.0746	0	0
P618	Live ABOVE	0.314	-0.0002442	0.072	0.0214	0.2583	-0.0929	0	0

4.2.2 Area Loads

Table 4.3 - Area Load Assignments - Uniform

UniqueName	Load Pattern	Direction	Load lb/ft2
F73	Dead	Gravity	235
F59	Dead	Gravity	15
F15	Dead	Gravity	235
F26	Dead	Gravity	15
F45	Dead	Gravity	35
F43	Dead	Gravity	25
F75	Dead	Gravity	25
F35	Dead	Gravity	25
F48	Dead	Gravity	25
F73	Live	Gravity	30
F59	Live	Gravity	60
F15	Live	Gravity	30
F26	Live	Gravity	60
F45	Live	Gravity	40
F43	Live	Gravity	30
F75	Live	Gravity	30
F35	Live	Gravity	30
F48	Live	Gravity	30

4.3 Load Cases

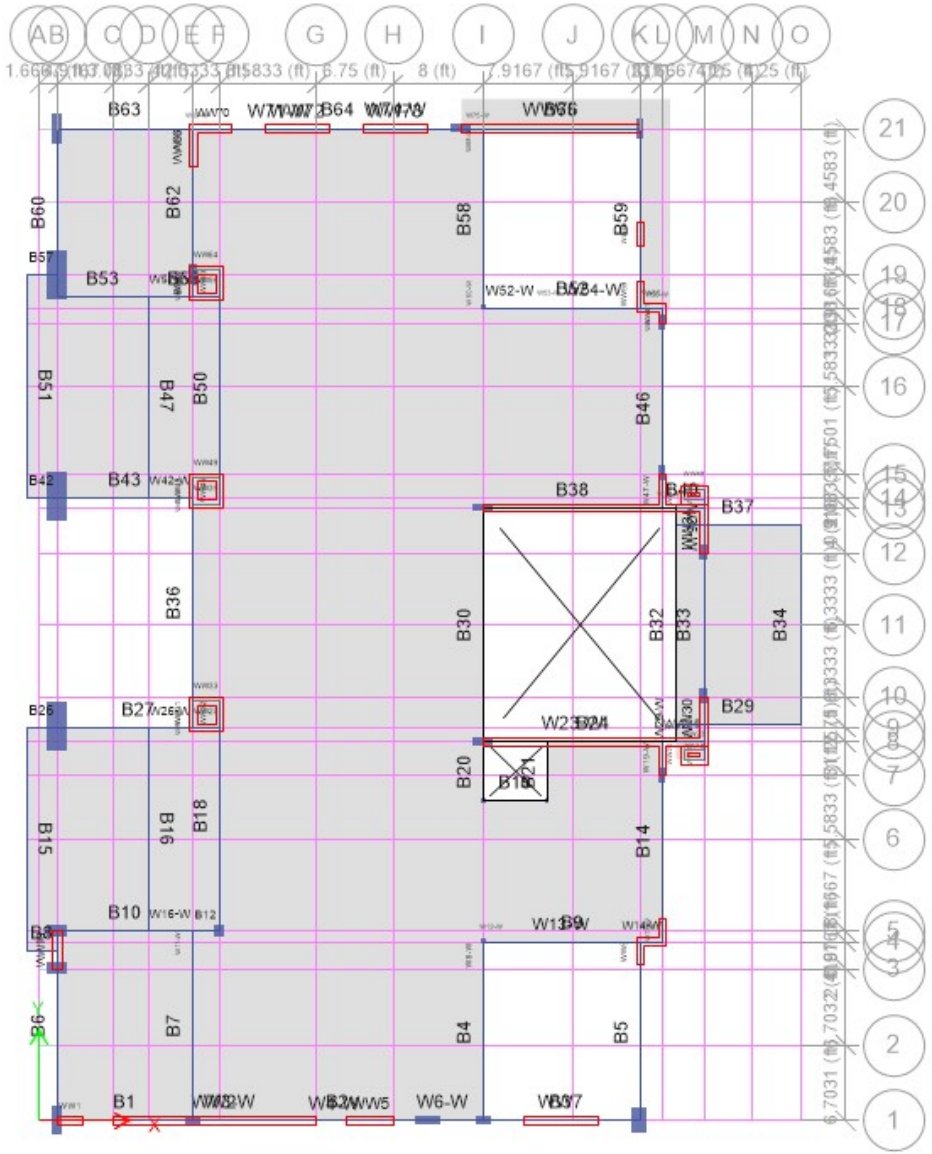
Table 4.4 - Load Case Definitions - Summary

Name	Type
Dead	Linear Static
Live	Linear Static

4.4 Load Combinations

Table 4.5 - Load Combination Definitions

Name	Type	Is Auto	Load Name	SF	Notes
Comb1	Linear Add	No	Dead	1	
Comb1			Live	1	
DConS1	Linear Add	Yes	Dead	1.4	Dead [Strength]
DConS2	Linear Add	Yes	Dead	1.2	Dead + Live [Strength]
DConS2			Live	1.6	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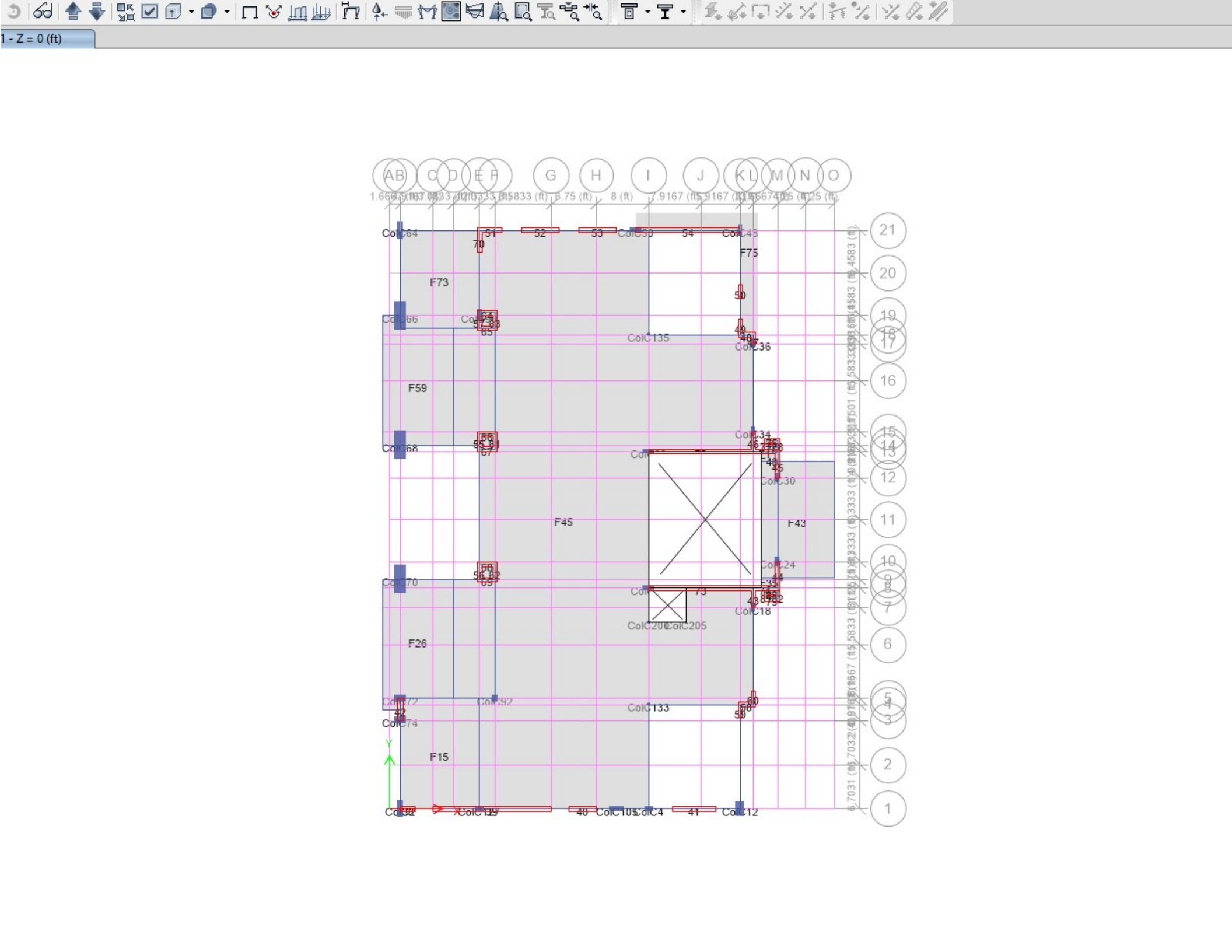
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F75
F59
F45
F43
F26
F15
ColC135
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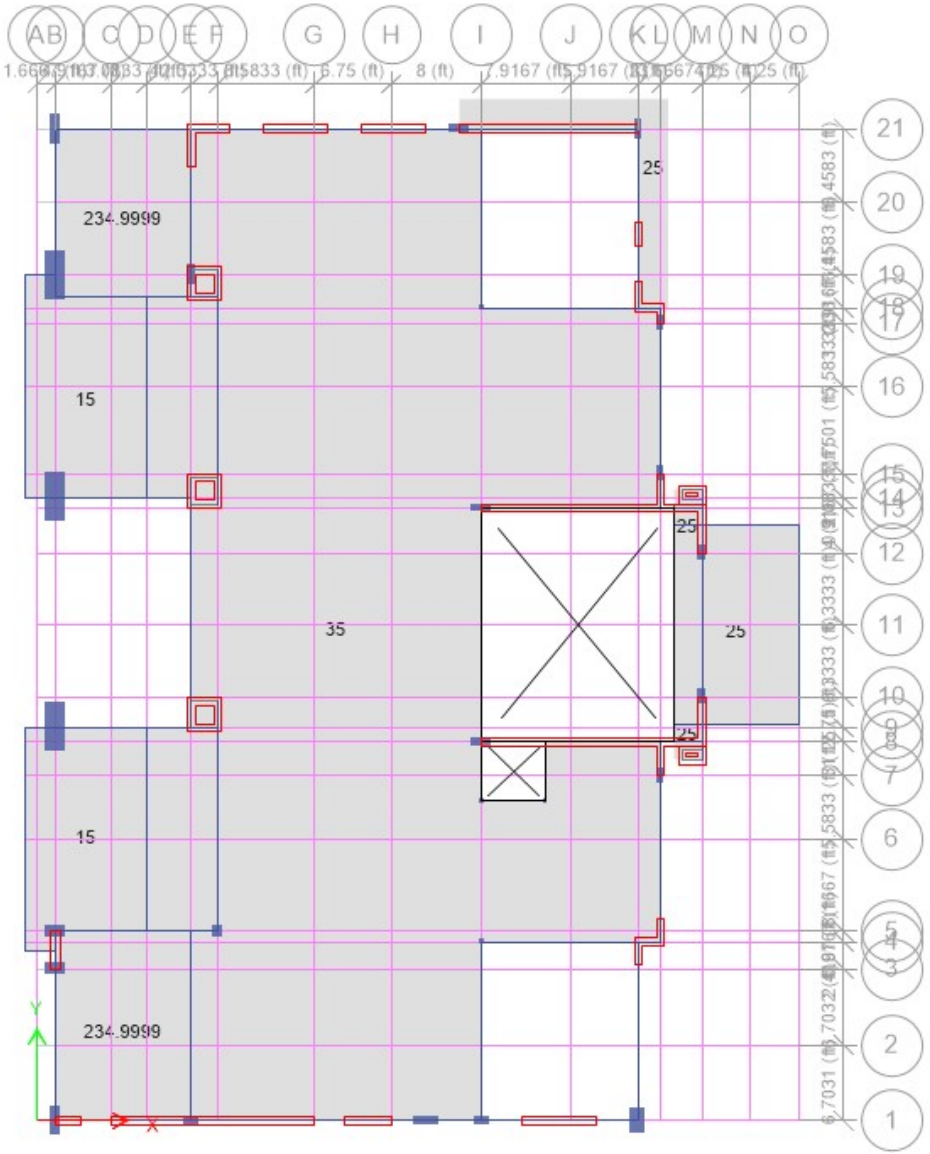
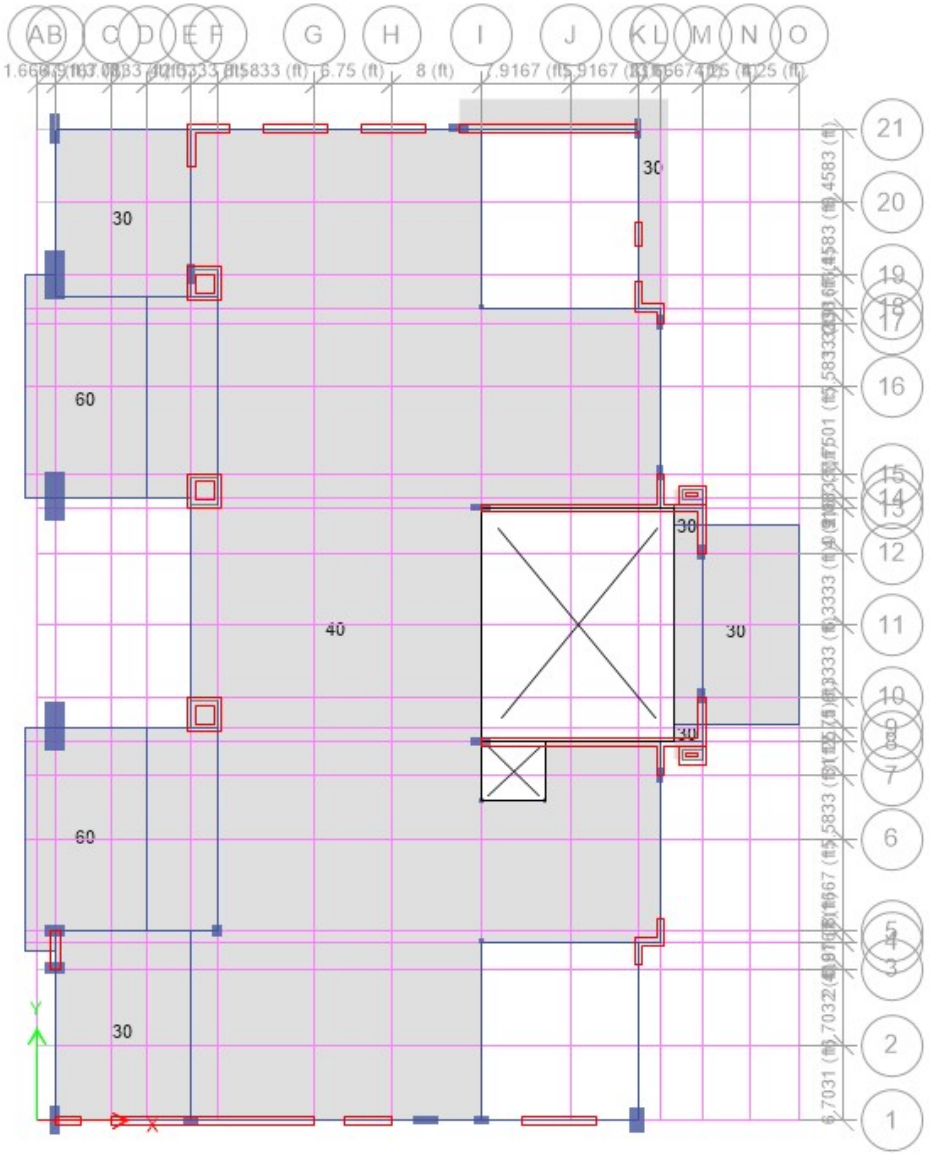
ColC18
ColC205
ColC133
ColC12
ColC4
ColC105

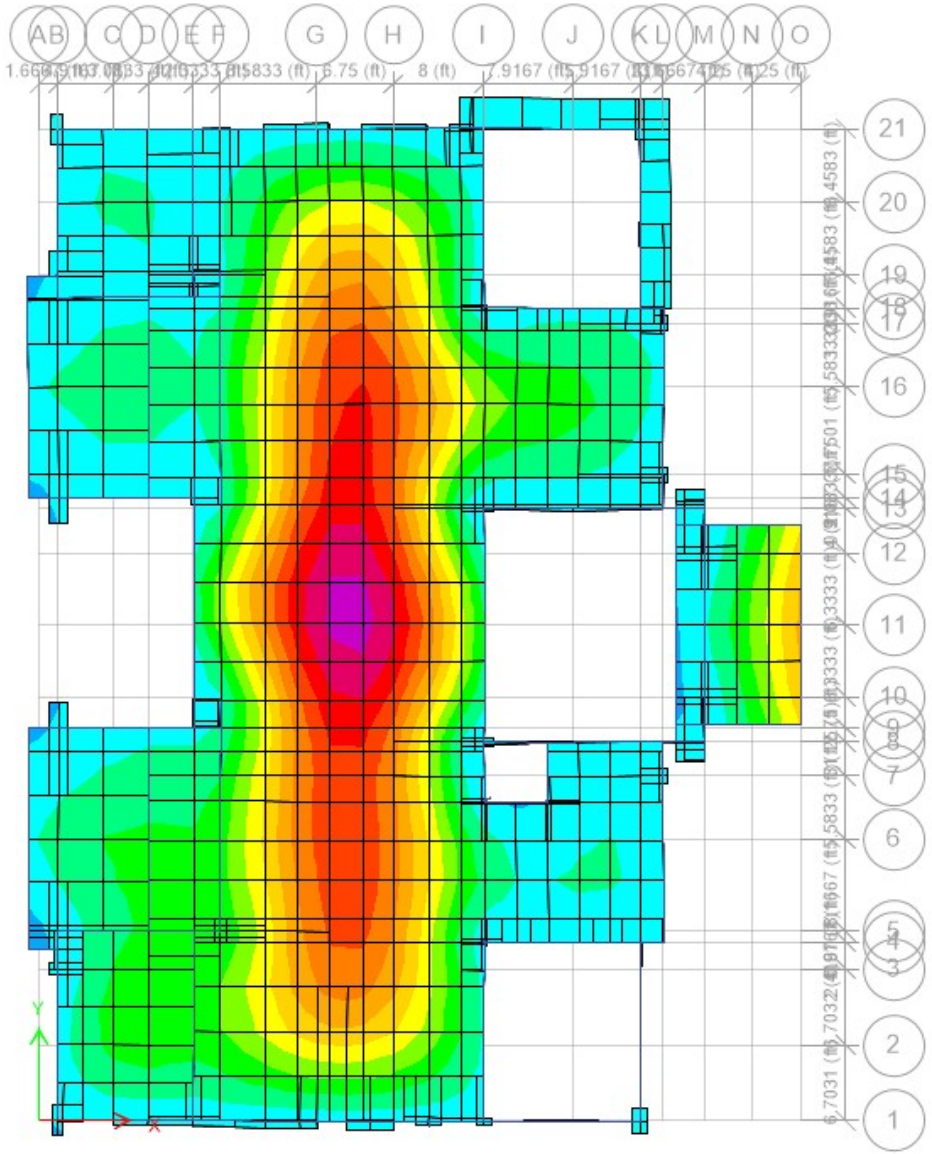
1 - Z = 0 (ft) Uniform Loads Gravity (Dead)



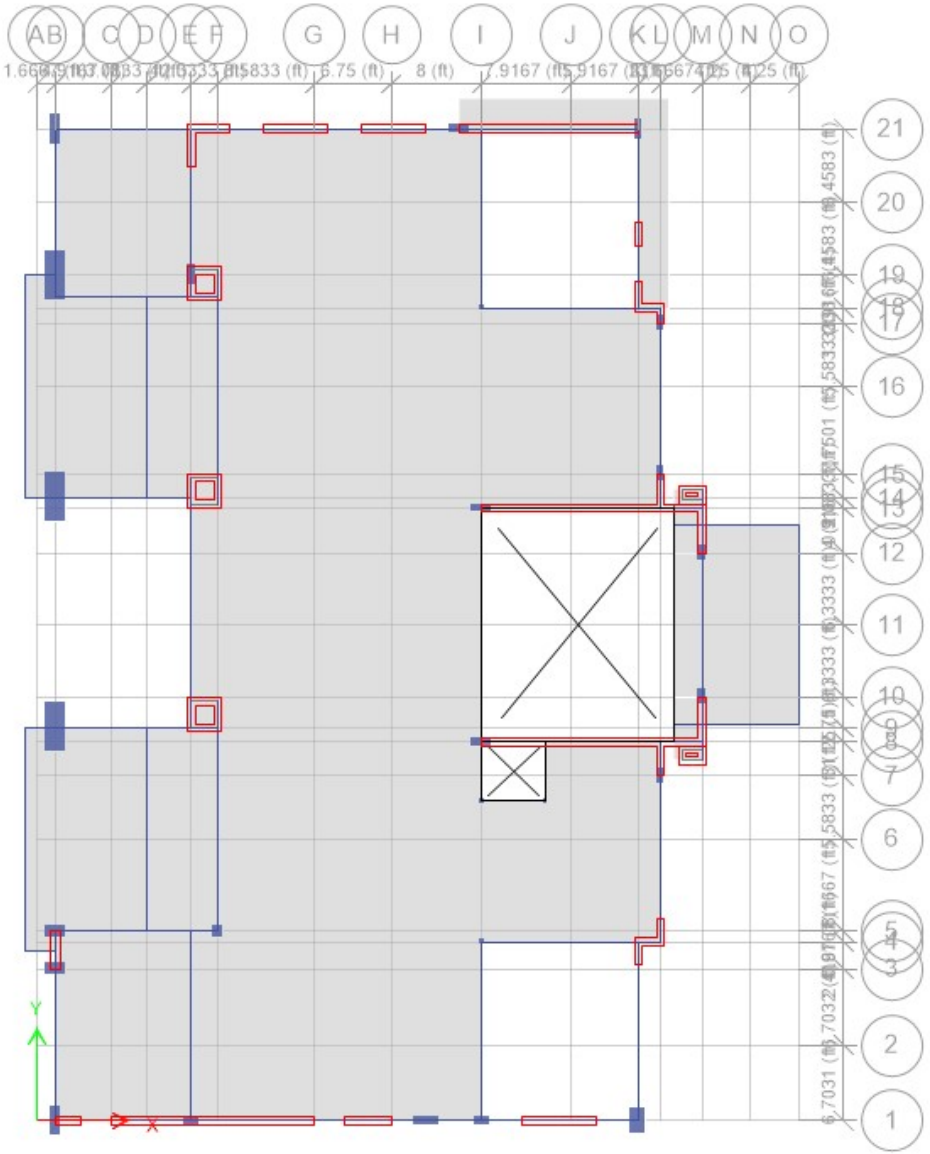
1 - Z = 0 (ft) Uniform Loads Gravity (Live)



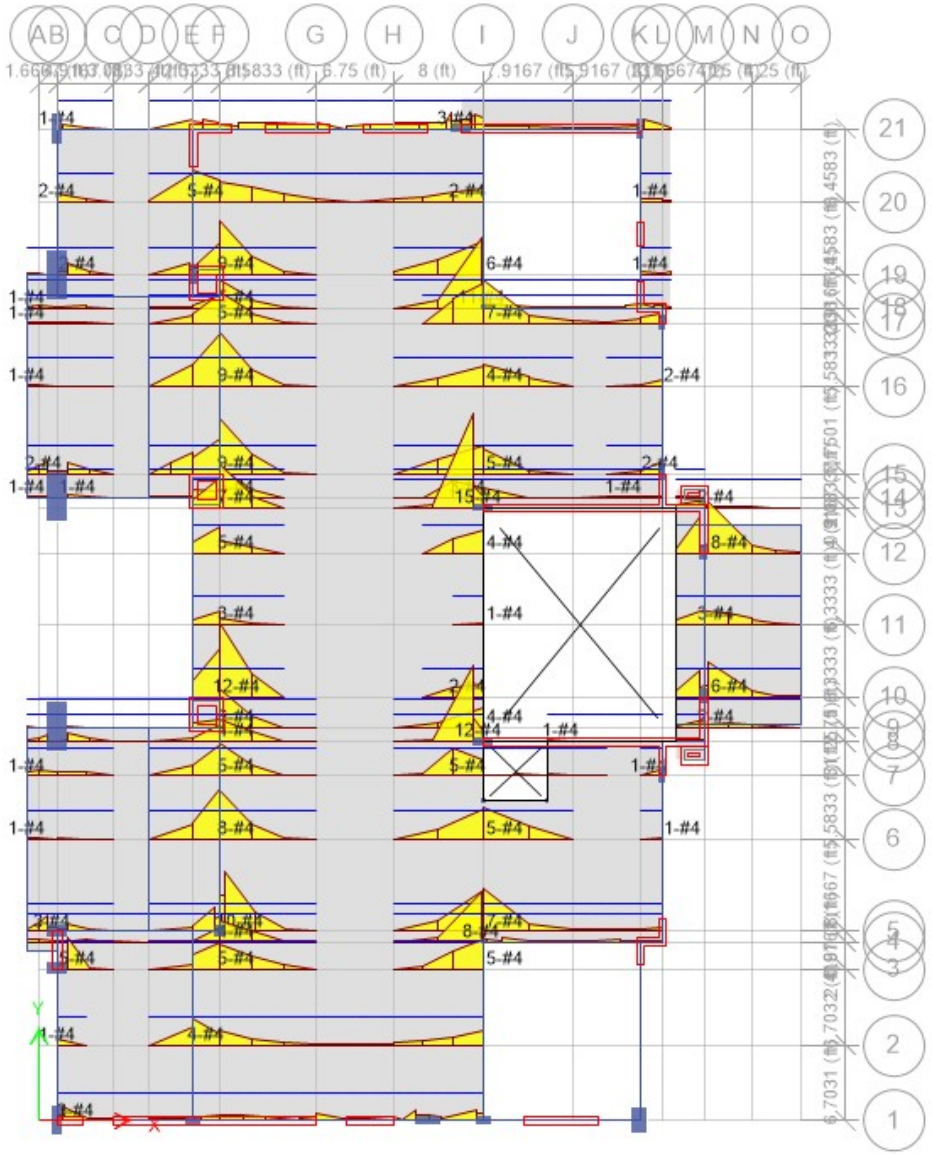
1 - Z = 0 (ft) - Displacements (Comb1) [in]



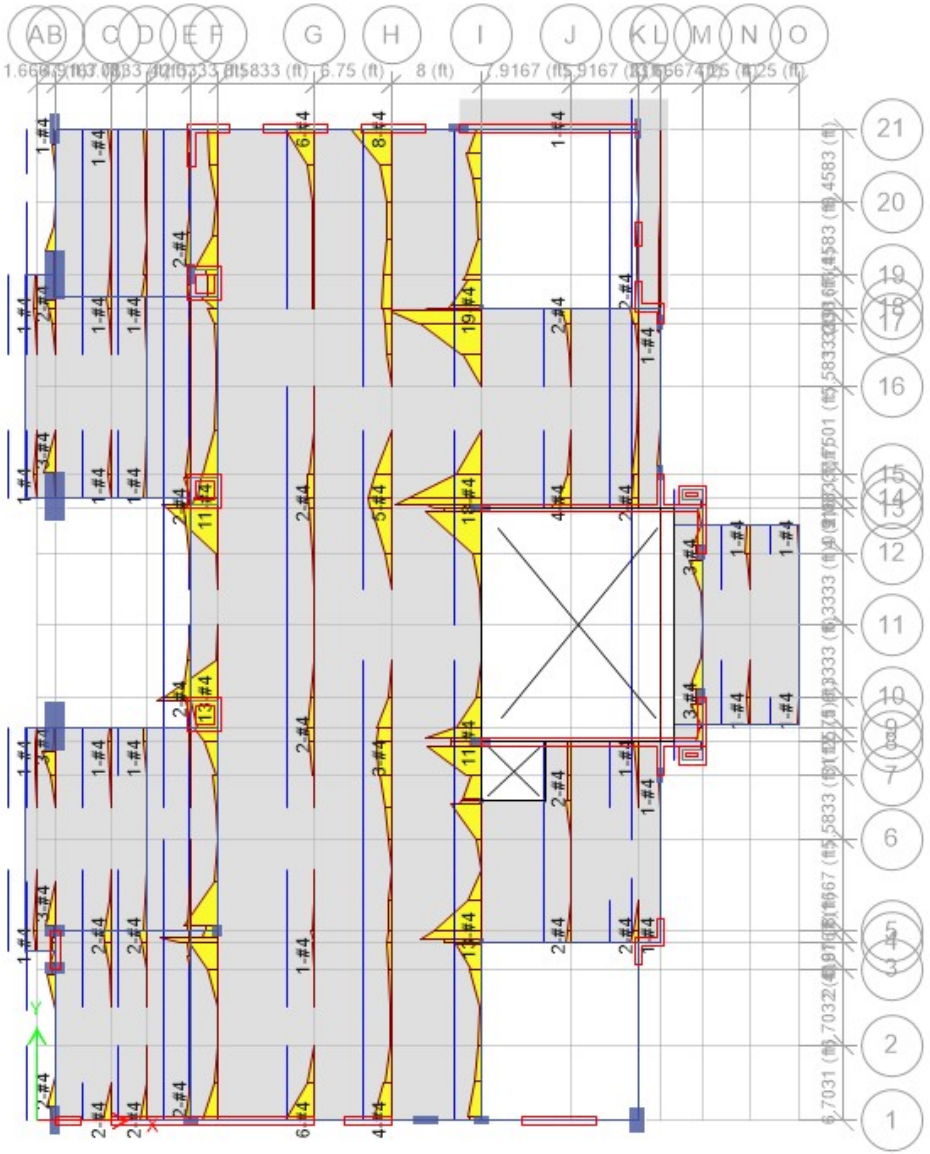
1 - Z = 0 (ft) Slab Strip Design - Layers A, B - Bottom Reinforcement (Enveloping Flexural) - Additional to #4 @ 8 in (Bot)



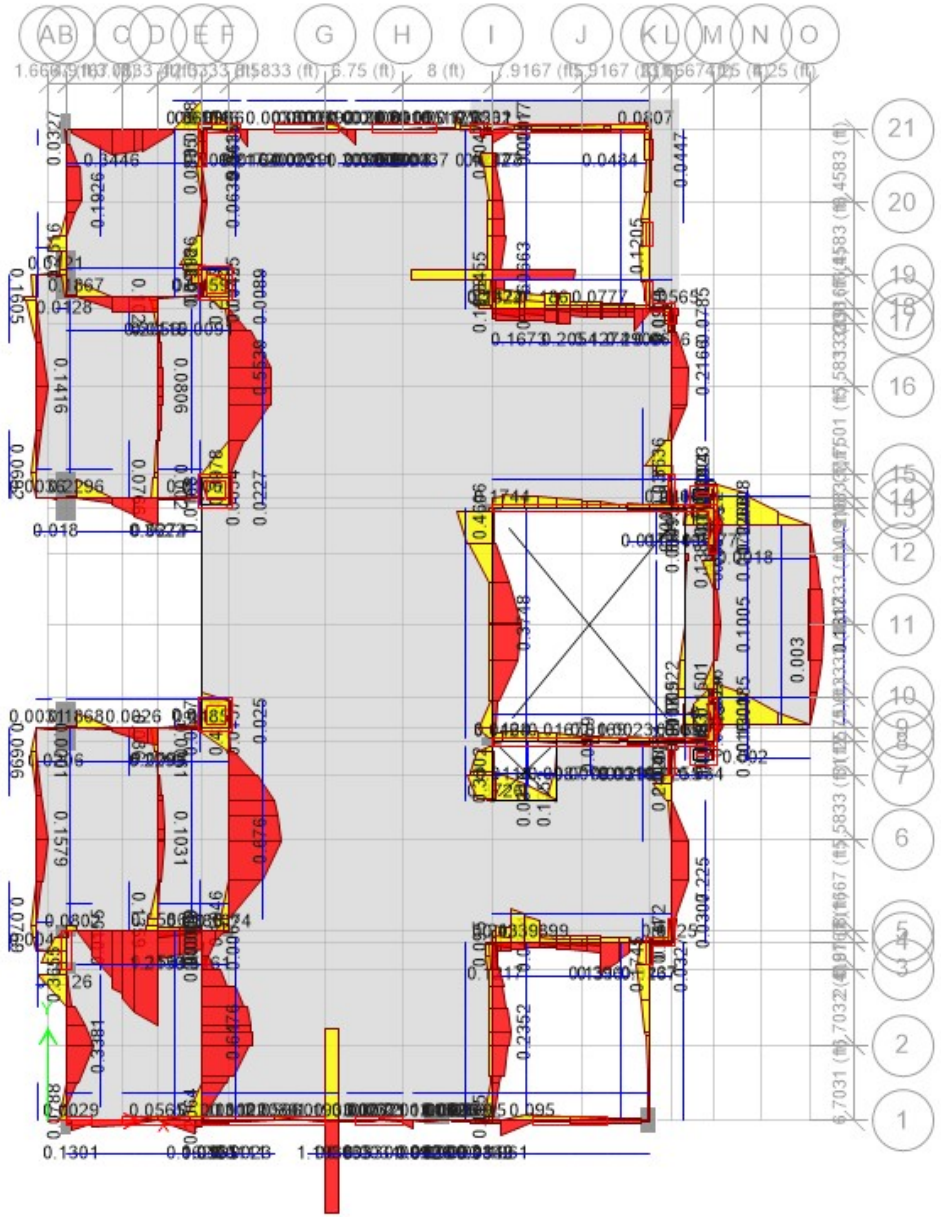
1 - Z = 0 (ft) Slab Strip Design - Layer A - Top Reinforcement (Enveloping Flexural) - Additional to #4 @ 1000 in (Top)



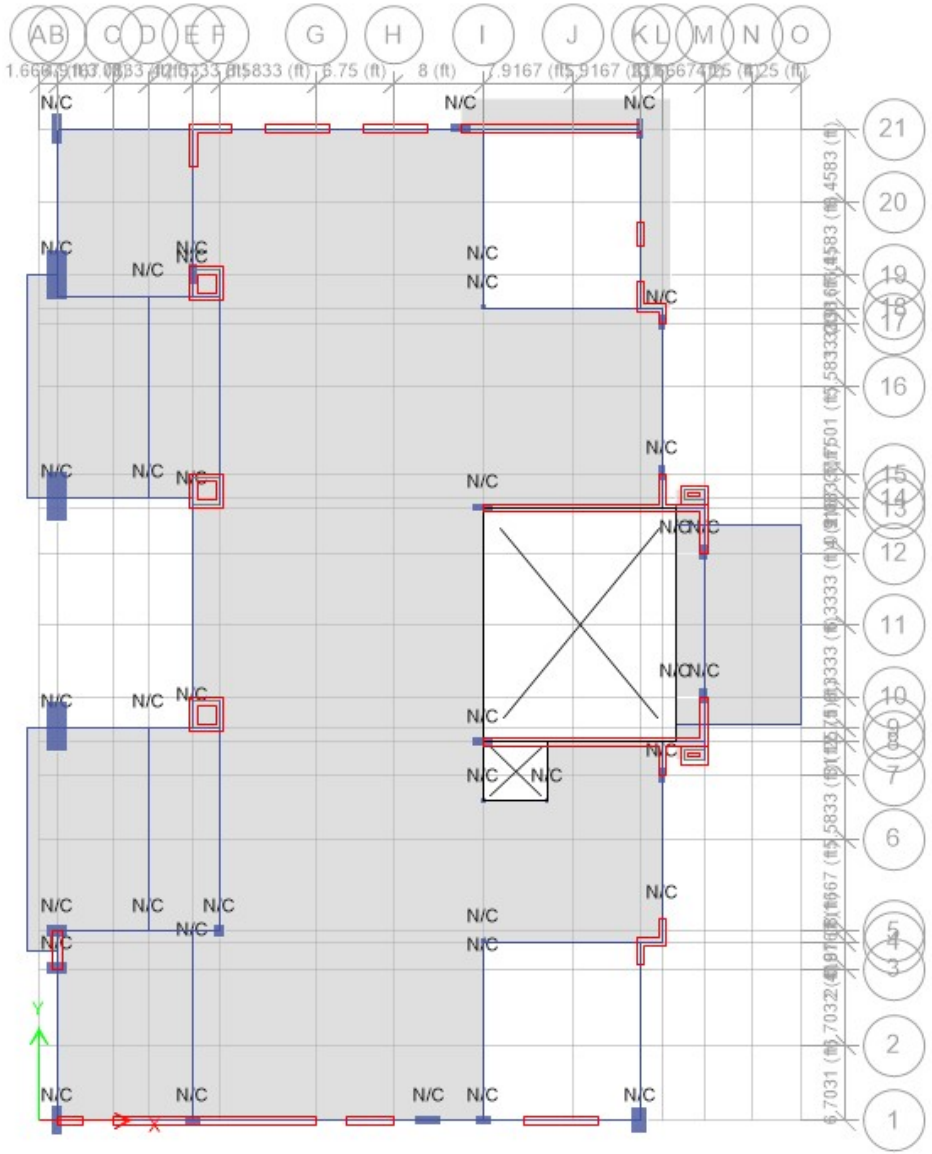
1 - Z = 0 (ft) Slab Strip Design - Layer B - Top Reinforcement (Enveloping Flexural) - Additional to #4 @ 1000 in (Top)



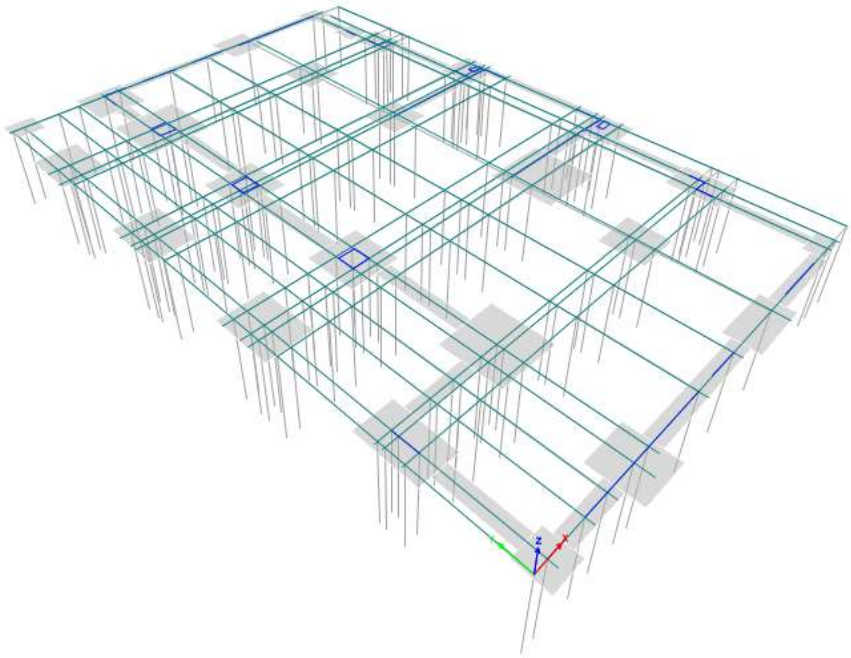
1 - Z = 0 (ft) Beam Total Longitudinal Rebar [in²]



1 - Z = 0 (ft) Punching Shear D/C Ratios/Shear Reinforcement



SAFE®



Foundations & Ground

De La Concepcion Residence

Model File: Foundations & Ground, Revision

12/8/2022

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1 Structure Data

This chapter provides model geometry information, including items such as story levels, point coordinates, and element connectivity.

1.1 Grid Data

Table 1.1 - Grid Definitions - General

Name	Type	Ux ft	Uy ft	Rz deg	Datum Name	Story Name Above	Story Name Below	Model Datum ft	Story Height Above ft	Story Height Below ft	Bubble Size in	Color
GLOBAL	Cartesian	0	0	0	Story1		Base	0		12	60	10461087

Table 1.2 - Grid Definitions - Grid Lines

Name	Grid Line Type	ID	Ordinate ft	Bubble Location	Visible
GLOBAL	X (Cartesian)	A	0	End	Yes
GLOBAL	X (Cartesian)	B	1.67	End	Yes
GLOBAL	X (Cartesian)	C	6.58	End	Yes
GLOBAL	X (Cartesian)	D	9.67	End	Yes
GLOBAL	X (Cartesian)	E	13.67	End	Yes
GLOBAL	X (Cartesian)	F	16	End	Yes
GLOBAL	X (Cartesian)	G	24.58	End	Yes
GLOBAL	X (Cartesian)	H	31.33	End	Yes
GLOBAL	X (Cartesian)	I	39.33	End	Yes
GLOBAL	X (Cartesian)	J	53.17	End	Yes
GLOBAL	X (Cartesian)	K	55.17	End	Yes
GLOBAL	X (Cartesian)	L	58.83	End	Yes
GLOBAL	Y (Cartesian)	1	0	End	Yes
GLOBAL	Y (Cartesian)	2	13.41	End	Yes
GLOBAL	Y (Cartesian)	3	15.82	End	Yes
GLOBAL	Y (Cartesian)	4	16.74	End	Yes
GLOBAL	Y (Cartesian)	5	30.49	End	Yes
GLOBAL	Y (Cartesian)	6	33.49	End	Yes
GLOBAL	Y (Cartesian)	7	34.74	End	Yes
GLOBAL	Y (Cartesian)	8	37.49	End	Yes
GLOBAL	Y (Cartesian)	9	50.16	End	Yes
GLOBAL	Y (Cartesian)	10	54.16	End	Yes
GLOBAL	Y (Cartesian)	11	55.07	End	Yes
GLOBAL	Y (Cartesian)	12	57.16	End	Yes
GLOBAL	Y (Cartesian)	13	70.49	End	Yes
GLOBAL	Y (Cartesian)	14	71.82	End	Yes
GLOBAL	Y (Cartesian)	15	74.74	End	Yes
GLOBAL	Y (Cartesian)	16	87.66	End	Yes

1.2 Line Connectivity

Table 1.3 - Beam Object Connectivity

Unique Name	UniquePtI	UniquePtJ	Length ft
W1-W	1	5	2.25
W2-W	7	9	18
W5-W	13	25	4.08
W7-W	77	79	6.67
W10-W	73	71	3.33
W19-W	17	81	3
W30-W	21	23	4
W34-W	29	31	4
W47-W	85	33	3
W51-W	35	37	1.33
W55-W	39	37	2
W59-W	39	41	2.42
W65-W	43	45	2.08
W70-W	61	59	3.33
W72-W	57	55	5.67
W73-W	53	51	5.67
W76-W	49	47	15.83
W45-W	112	104	2.33
W31-W	129	121	2.33
W62-W	149	139	2.33
W15-W	15	155	2
W9-W	165	15	2
W17-W	155	160	2
W46-W	168	169	2.33
W32-W	172	173	2.33
W63-W	176	177	2.33
W64-W	139	177	2.33
W58-W	149	176	2.33
W49-W	104	169	2.33
W39-W	112	168	2.33
W33-W	121	173	2.33
W27-W	129	172	2.33
W66-W	100	61	3.33
W38-W	85	31	3.67
W36-W	84	85	15.83
W23-W	19	81	15.83
W25-W	81	21	3.67
W48-W	317	318	1.75
W41-W	319	320	1.75
W43-W	319	317	1
W44-W	320	318	1
W18-W	321	322	1.75
W22-W	333	334	1.75
W20-W	321	333	1
W21-W	322	334	1

1.3 Area Connectivity

Table 1.4 - Floor Object Connectivity

Unique Name	UniquePt1	UniquePt2	UniquePt3	UniquePt4	Perimeter ft	Area ft2
F80	218	219	220	221	16	16
F84	226	227	228	229	16	16
F70	230	231	232	233	16	16
F66	250	251	252	253	28	48
F51	254	255	256	257	28	48
F36	258	259	260	261	28	48
F6	286	287	288	289	24	32
F7	298	299	300	301	24.54	20.54
F8	302	303	304	305	12.96	9.92
F33	313	314	315	316	24	36
F53	323	324	325	326	24	36
F42	327	328	329	330	40	36
F74	340	341	342	343	14.75	10.75
F32	379	380	381	382	36	81
F34	387	388	389	390	18.67	14.67
F5	294	295	296	297	36.46	32.46
F83	354	355	356	357	25.67	21.67
F50	383	384	385	386	27.33	23.33
F82	222	223	224	225	24	36
F60	234	235	236	237	24	36
F49	238	239	240	241	24	36
F22	242	243	244	245	24	36
F79	266	267	268	269	28	49
F4	282	283	284	285	24	36
F81	350	351	352	353	38.33	34.33
F52	274	275	276	277	28	49
F37	278	279	280	281	28	49
F23	306	307	308	309	24	35
F61	331	332	335	336	24	35
F47	365	366	367	368	29.5	25.5
F14	310	311	110	113	24.65	20.65
F67	36	38	338	339	4.83	0.83
F57	344	345	27	30	24.08	20.08
F27	50	52	348	349	23	19
F21	262	263	264	265	26	40
F24	372	10	12	375	19.67	15.67
F72	358	359	360	361	11.42	7.42
F31	369	370	6	8	27.43	23.87
F25	246	247	248	249	32	64
F64	270	271	272	273	36	81
F58	14	16	363	364	25.04	20.14
1	2	4	20	22	16	16
F3	24	291	292	26	18	14
F13	32	34	377	378	22.15	18.15

1.4 Strip Connectivity

Table 1.5 - Strip Object Connectivity

Name	Number Segments	Strip Start Point	Segment End Point	Start Width Left ft	Start Width Right ft	End Width Left ft	End Width Right ft	Auto Widen	Layer
CSA1	1	56	58	6.7	6.7	6.7	6.7	No	A
CSA10	1	86	87	0.46	2	0.46	2	No	A
CSA11	1	88	90	1.04	0.46	1.04	0.46	No	A
CSA12	1	92	95	6.67	1.04	6.67	1.04	No	A
CSA13	1	40	96	0.67	6.67	0.67	6.67	No	A
CSA14	1	97	98	1.46	0.67	1.46	0.67	No	A
CSA15	1	99	101	6.46	1.46	6.46	1.46	No	A
CSA16	1	102	105	6.46	6.46	6.46	6.46	No	A
CSA2	1	60	62	1.21	6.7	1.21	6.7	No	A
CSA3	1	64	66	0.46	1.21	0.46	1.21	No	A
CSA4	1	68	70	6.88	0.46	6.88	0.46	No	A
CSA5	1	18	72	1.5	6.88	1.5	6.88	No	A
CSA6	1	74	75	0.63	1.5	0.63	1.5	No	A
CSA7	1	76	78	1.38	0.63	1.38	0.63	No	A
CSA8	1	80	82	6.33	1.38	6.33	1.38	No	A
CSA9	1	28	83	2	6.33	2	6.33	No	A
CSB1	1	106	119	0.83	0.83	0.83	0.83	No	B
CSB10	1	135	136	6.92	1	6.92	1	No	B
CSB11	1	303	227	1	1.83	1	1.83	No	B
CSB12	1	117	118	1.83	1.83	1.83	1.83	No	B
CSB2	1	120	122	0.83	2.46	0.83	2.46	No	B
CSB3	1	123	109	2.46	1.54	2.46	1.54	No	B
CSB4	1	124	111	1.54	2	1.54	2	No	B
CSB5	1	125	126	2	1.17	2	1.17	No	B
CSB6	1	127	128	1.17	4.29	1.17	4.29	No	B
CSB7	1	130	131	4.29	3.38	4.29	3.38	No	B
CSB8	1	132	133	3.38	4	3.38	4	No	B
CSB9	1	134	354	4	6.92	4	6.92	No	B

2 Properties

This chapter provides property information for materials, frame sections, shell sections, and links.

2.1 Materials

Table 2.1 - Material Properties - General

Material	Type	SymType	Grade	Color	Notes
4000Psi	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:58:45 AM
A416Gr270	Tendon	Uniaxial	Unknown	Magenta	ASTM A416 Grade 270 added 12/8/2022 10:58:45 AM
A615Gr60	Rebar	Uniaxial	Unknown	Cyan	ASTM A615 Grade 60 added 12/8/2022 10:58:45 AM
A992Fy50	Steel	Isotropic	Grade 50	Green	
MAT1	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:58:45 AM
MAT2	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:58:45 AM
MAT3	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:58:45 AM
MAT4	Concrete	Isotropic	Unknown	Blue	Normalweight f'c = 4 ksi added 12/8/2022 10:58:45 AM

2.2 Frame Sections

Table 2.2 - Frame Section Property Definitions - Summary (Part 1 of 3)

Name	Material	Shape	Color	Area in2	J in4	I33 in4	I22 in4	As2 in2	As3 in2	S33Pos in3
12CMU-W	MAT1	Concrete Rectangular	Blue	2016	92413.45	4741632	24192	1680	1680	56448
8CMU-W	MAT1	Concrete Rectangular	Gray8Dark	1344	27811.84	3161088	7168	1120	1120	37632
8CW-W	MAT2	Concrete Rectangular	Green	1344	27811.84	3161088	7168	1120	1120	37632
BEAM1	4000Psi	Concrete Rectangular	Cyan	288	9492.12	13824	3456	240	240	1152
COL1	4000Psi	Concrete Rectangular	Cyan	288	9492.12	13824	3456	240	240	1152

Table 2.2 - Frame Section Property Definitions - Summary (Part 2 of 3)

Name	S33Neg in3	S22Pos in3	S22Neg in3	Z33 in3	Z22 in3	R33 in	R22 in	CG Offset 3 in	CG Offset 2 in	PNA Offset 3 in	PNA Offset 2 in	Area Modifier
12CMU-W	56448	4032	4032	84672	6048	48.4974	3.4641	0	0	0	0	1
8CMU-W	37632	1792	1792	56448	2688	48.4974	2.3094	0	0	0	0	1
8CW-W	37632	1792	1792	56448	2688	48.4974	2.3094	0	0	0	0	1
BEAM1	1152	576	576	1728	864	6.9282	3.4641	0	0	0	0	1
COL1	1152	576	576	1728	864	6.9282	3.4641	0	0	0	0	1

Table 2.2 - Frame Section Property Definitions - Summary (Part 3 of 3)

Name	As3 Modifier	J Modifier	I33 Modifier	I22 Modifier	Mass Modifier	Weight Modifier
12CMU-W	1	1	1	1	1	1
8CMU-W	1	1	1	1	1	1
8CW-W	1	1	1	1	1	1
BEAM1	1	1	1	1	1	1
COL1	1	1	1	1	1	1

2.3 Shell Sections

Table 2.3 - Area Section Property Definitions - Summary

Name	Type	Element Type	Material	Total Thickness in
Col_{Stiff}	Slab	Shell-Thin	MAT4	16
Footing12	Slab	Shell-Thin	MAT3	12
Footing16	Slab	Shell-Thin	MAT3	16
SLAB1	Slab	Shell-Thick	4000Psi	8
WALL1	Wall	Shell-Thick	4000Psi	12

2.4 Reinforcement Sizes

Table 2.4 - Reinforcing Bar Sizes

Name	Diameter in	Area in2
#2	0.25	0.05
#3	0.375	0.11
#4	0.5	0.2
#5	0.625	0.31
#6	0.75	0.44
#7	0.875	0.6
#8	1	0.79
#9	1.128	1
#10	1.27	1.27
#11	1.41	1.56
#14	1.693	2.25
#18	2.257	4

2.5 Spring Properties

Table 2.5 - Spring Property Definitions - Point Springs

Name	Stiffness UX kip/in	Stiffness UY kip/in	Stiffness UZ kip/in	Stiffness RX kip-in/rad	Stiffness RY kip-in/rad	Stiffness RZ kip-in/rad	Nonlinear Option	Color	Notes
PSPR1	0	0	0.001	0	0	0	None (Linear)	Blue	

Table 2.6 - Spring Property Definitions - Line Springs

Name	Vertical Stffness kip/in	Rotational Stffness kip-in/rad	Nonlinear Option	Color	Notes
LSPR1	0.001	0.001	None (Linear)	Yellow	

Table 2.7 - Spring Property Definitions - Area Springs

Name	Subgrade Modulus kip/in/in2	Nonlinear Option	Color	Notes
SOIL1	0.1	Compression Only	Cyan	

3 Assignments

This chapter provides a listing of the assignments applied to the model.

3.1 Frame Assignments

Table 3.1 - Frame Assignments - Summary

UniqueName	Design Type	Length ft	Analysis Section	Design Section	Min Number Stations
W1-W	Beam	2.25	8CMU-W	8CMU-W	3
W2-W	Beam	18	8CMU-W	8CMU-W	3
W5-W	Beam	4.08	8CMU-W	8CMU-W	3
W7-W	Beam	6.67	8CMU-W	8CMU-W	3
W10-W	Beam	3.33	12CMU-W	12CMU-W	3
W19-W	Beam	3	8CMU-W	8CMU-W	3
W30-W	Beam	4	8CMU-W	8CMU-W	3
W34-W	Beam	4	8CMU-W	8CMU-W	3
W47-W	Beam	3	8CMU-W	8CMU-W	3
W51-W	Beam	1.33	8CMU-W	8CMU-W	3
W55-W	Beam	2	8CMU-W	8CMU-W	3
W59-W	Beam	2.42	8CMU-W	8CMU-W	3
W65-W	Beam	2.08	8CMU-W	8CMU-W	3
W70-W	Beam	3.33	8CMU-W	8CMU-W	3
W72-W	Beam	5.67	8CMU-W	8CMU-W	3
W73-W	Beam	5.67	8CMU-W	8CMU-W	3
W76-W	Beam	15.83	8CMU-W	8CMU-W	3
W45-W	Beam	2.33	8CMU-W	8CMU-W	3
W31-W	Beam	2.33	8CMU-W	8CMU-W	3
W62-W	Beam	2.33	8CMU-W	8CMU-W	3
W15-W	Beam	2	8CW-W	8CW-W	3
W9-W	Beam	2	8CW-W	8CW-W	3
W17-W	Beam	2	8CW-W	8CW-W	3
W46-W	Beam	2.33	8CMU-W	8CMU-W	3
W32-W	Beam	2.33	8CMU-W	8CMU-W	3
W63-W	Beam	2.33	8CMU-W	8CMU-W	3
W64-W	Beam	2.33	8CMU-W	8CMU-W	3
W58-W	Beam	2.33	8CMU-W	8CMU-W	3
W49-W	Beam	2.33	8CMU-W	8CMU-W	3
W39-W	Beam	2.33	8CMU-W	8CMU-W	3
W33-W	Beam	2.33	8CMU-W	8CMU-W	3
W27-W	Beam	2.33	8CMU-W	8CMU-W	3
W66-W	Beam	3.33	8CW-W	8CW-W	3
W38-W	Beam	3.67	8CW-W	8CW-W	3
W36-W	Beam	15.83	8CMU-W	8CMU-W	3
W23-W	Beam	15.83	8CMU-W	8CMU-W	3
W25-W	Beam	3.67	8CW-W	8CW-W	3
W48-W	Beam	1.75	8CMU-W	8CMU-W	3
W41-W	Beam	1.75	8CMU-W	8CMU-W	3
W43-W	Beam	1	8CMU-W	8CMU-W	3

Table 3.1 - Frame Assignments - Summary (continued)

UniqueName	Design Type	Length ft	Analysis Section	Design Section	Min Number Stations
W44-W	Beam	1	8CMU-W	8CMU-W	3
W18-W	Beam	1.75	8CMU-W	8CMU-W	3
W22-W	Beam	1.75	8CMU-W	8CMU-W	3
W20-W	Beam	1	8CMU-W	8CMU-W	3
W21-W	Beam	1	8CMU-W	8CMU-W	3

3.2 Shell Assignments

Table 3.2 - Area Assignments - Summary

UniqueName	Section Property	Property Type	Spring
F80	Footing12	Slab	SOIL1
F84	Footing12	Slab	SOIL1
F70	Footing12	Slab	SOIL1
F66	Footing16	Slab	SOIL1
F51	Footing16	Slab	SOIL1
F36	Footing16	Slab	SOIL1
F6	Footing16	Slab	SOIL1
F7	Footing12	Slab	SOIL1
F8	Footing12	Slab	SOIL1
F33	Footing16	Slab	SOIL1
F53	Footing16	Slab	SOIL1
F42	Footing12	Slab	SOIL1
F74	Footing12	Slab	SOIL1
F32	Footing16	Slab	SOIL1
F34	Footing12	Slab	SOIL1
F5	Footing12	Slab	SOIL1
F83	Footing12	Slab	SOIL1
F50	Footing12	Slab	SOIL1
F82	Footing16	Slab	SOIL1
F60	Footing16	Slab	SOIL1
F49	Footing16	Slab	SOIL1
F22	Footing16	Slab	SOIL1
F79	Footing16	Slab	SOIL1
F4	Footing16	Slab	SOIL1
F81	Footing12	Slab	SOIL1
F52	Footing16	Slab	SOIL1
F37	Footing16	Slab	SOIL1
F23	Footing16	Slab	SOIL1
F61	Footing16	Slab	SOIL1
F47	Footing12	Slab	SOIL1
F14	Footing12	Slab	SOIL1
F67	Footing12	Slab	SOIL1
F57	Footing12	Slab	SOIL1
F27	Footing12	Slab	SOIL1

Table 3.2 - Area Assignments - Summary (continued)

UniqueName	Section Property	Property Type	Spring
F21	Footing16	Slab	SOIL1
F24	Footing12	Slab	SOIL1
F72	Footing12	Slab	SOIL1
F31	Footing12	Slab	SOIL1
F25	Footing16	Slab	SOIL1
F64	Footing16	Slab	SOIL1
F58	Footing12	Slab	SOIL1
1	Footing12	Slab	SOIL1
F3	Footing12	Slab	SOIL1
F13	Footing12	Slab	SOIL1

4 Loads

This chapter provides loading information as applied to the model.

4.1 Load Patterns

Table 4.1 - Load Pattern Definitions

Name	Is Auto Load	Type	Self Weight Multiplier	Auto Load
~LLRF	No	Other	0	
Dead	No	Dead	1	
Dead ABOVE	No	Dead	0	
Live	No	Live	0	
Live ABOVE	No	Live	0	
Wind(1/12)	No	Wind	0	None
Wind(1/12) ABOVE	No	Wind	0	None
Wind(10/12)	No	Wind	0	None
Wind(10/12) ABOVE	No	Wind	0	None
Wind(11/12)	No	Wind	0	None
Wind(11/12) ABOVE	No	Wind	0	None
Wind(12/12)	No	Wind	0	None
Wind(12/12) ABOVE	No	Wind	0	None
Wind(2/12)	No	Wind	0	None
Wind(2/12) ABOVE	No	Wind	0	None
Wind(3/12)	No	Wind	0	None
Wind(3/12) ABOVE	No	Wind	0	None
Wind(4/12)	No	Wind	0	None
Wind(4/12) ABOVE	No	Wind	0	None
Wind(5/12)	No	Wind	0	None
Wind(5/12) ABOVE	No	Wind	0	None
Wind(6/12)	No	Wind	0	None
Wind(6/12) ABOVE	No	Wind	0	None
Wind(7/12)	No	Wind	0	None
Wind(7/12) ABOVE	No	Wind	0	None
Wind(8/12)	No	Wind	0	None
Wind(8/12) ABOVE	No	Wind	0	None
Wind(9/12)	No	Wind	0	None
Wind(9/12) ABOVE	No	Wind	0	None

4.2 Load Cases

Table 4.2 - Load Case Definitions - Summary

Name	Type
Dead	Linear Static
Live	Linear Static
Wind(1/12)	Linear Static
Wind(2/12)	Linear Static
Wind(3/12)	Linear Static
Wind(4/12)	Linear Static

Table 4.2 - Load Case Definitions - Summary (continued)

Name	Type
Wind(5/12)	Linear Static
Wind(6/12)	Linear Static
Wind(7/12)	Linear Static
Wind(8/12)	Linear Static
Wind(9/12)	Linear Static
Wind(10/12)	Linear Static
Wind(11/12)	Linear Static
Wind(12/12)	Linear Static

4.3 Load Combinations

Table 4.3 - Load Combination Definitions

Name	Type	Is Auto	Load Name	SF	Notes
Comb1	Linear Add	No	Dead	1	
Comb1			Live	1	
DConS1	Linear Add	Yes	Dead	1.4	Dead [Strength]
DConS2	Linear Add	Yes	Dead	1.2	Dead + Live [Strength]
DConS2			Live	1.6	
DConS3	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS3			Live	1	
DConS3			Wind(1/12)	1	
DConS4	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS4			Live	1	
DConS4			Wind(1/12)	-1	
DConS5	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS5			Live	1	
DConS5			Wind(2/12)	1	
DConS6	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS6			Live	1	
DConS6			Wind(2/12)	-1	
DConS7	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS7			Live	1	
DConS7			Wind(3/12)	1	
DConS8	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS8			Live	1	
DConS8			Wind(3/12)	-1	
DConS9	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS9			Live	1	
DConS9			Wind(4/12)	1	
DConS10	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS10			Live	1	
DConS10			Wind(4/12)	-1	
DConS11	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS11			Live	1	
DConS11			Wind(5/12)	1	
DConS12	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]

Table 4.3 - Load Combination Definitions (continued)

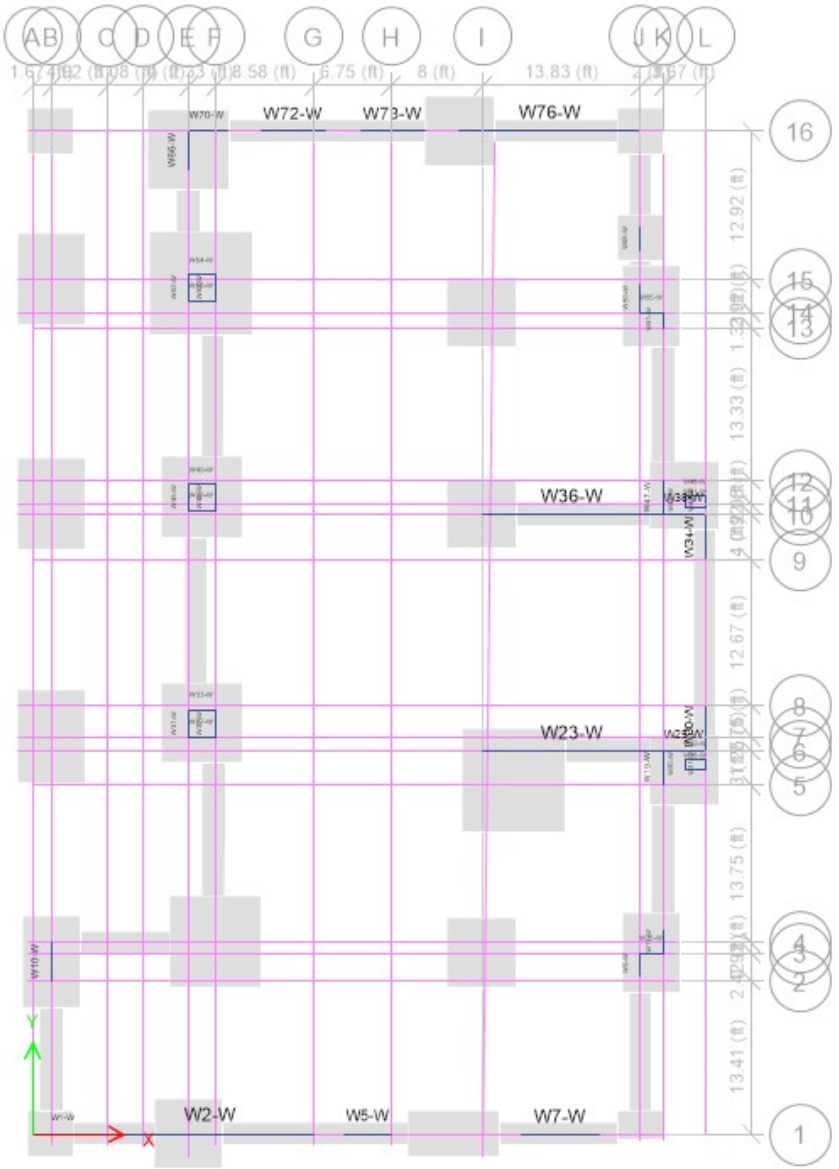
Name	Type	Is Auto	Load Name	SF	Notes
DConS12			Live	1	
DConS12			Wind(5/12)	-1	
DConS13	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS13			Live	1	
DConS13			Wind(6/12)	1	
DConS14	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS14			Live	1	
DConS14			Wind(6/12)	-1	
DConS15	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS15			Live	1	
DConS15			Wind(7/12)	1	
DConS16	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS16			Live	1	
DConS16			Wind(7/12)	-1	
DConS17	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS17			Live	1	
DConS17			Wind(8/12)	1	
DConS18	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS18			Live	1	
DConS18			Wind(8/12)	-1	
DConS19	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS19			Live	1	
DConS19			Wind(9/12)	1	
DConS20	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS20			Live	1	
DConS20			Wind(9/12)	-1	
DConS21	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS21			Live	1	
DConS21			Wind(10/12)	1	
DConS22	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS22			Live	1	
DConS22			Wind(10/12)	-1	
DConS23	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS23			Live	1	
DConS23			Wind(11/12)	1	
DConS24	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS24			Live	1	
DConS24			Wind(11/12)	-1	
DConS25	Linear Add	Yes	Dead	1.2	Dead + Live + Wind + Snow [Strength]
DConS25			Live	1	
DConS25			Wind(12/12)	1	
DConS26	Linear Add	Yes	Dead	1.2	Dead + Live - Wind + Snow [Strength]
DConS26			Live	1	
DConS26			Wind(12/12)	-1	
DConS27	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]

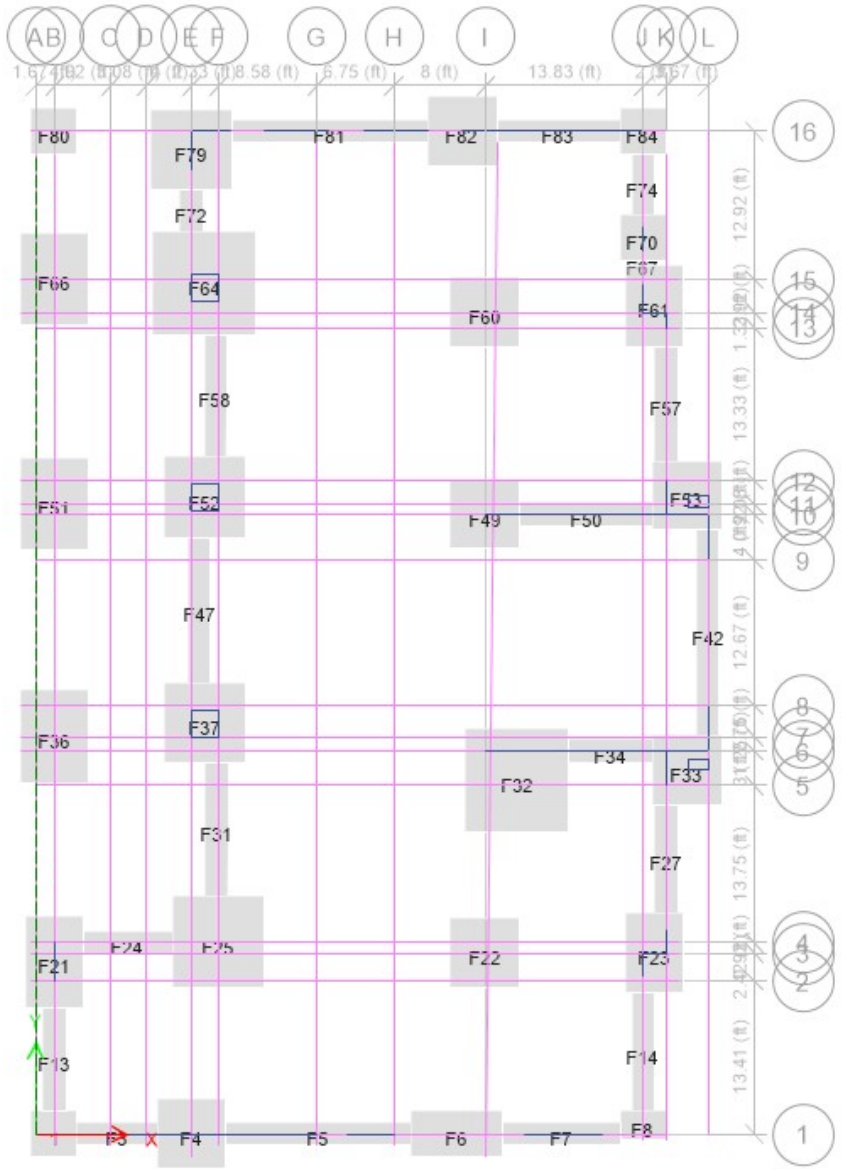
Table 4.3 - Load Combination Definitions (continued)

Name	Type	Is Auto	Load Name	SF	Notes
DConS27			Wind(1/12)	1	
DConS28	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS28			Wind(1/12)	-1	
DConS29	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS29			Wind(2/12)	1	
DConS30	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS30			Wind(2/12)	-1	
DConS31	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS31			Wind(3/12)	1	
DConS32	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS32			Wind(3/12)	-1	
DConS33	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS33			Wind(4/12)	1	
DConS34	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS34			Wind(4/12)	-1	
DConS35	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS35			Wind(5/12)	1	
DConS36	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS36			Wind(5/12)	-1	
DConS37	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS37			Wind(6/12)	1	
DConS38	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS38			Wind(6/12)	-1	
DConS39	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS39			Wind(7/12)	1	
DConS40	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS40			Wind(7/12)	-1	
DConS41	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS41			Wind(8/12)	1	
DConS42	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS42			Wind(8/12)	-1	
DConS43	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS43			Wind(9/12)	1	
DConS44	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS44			Wind(9/12)	-1	
DConS45	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS45			Wind(10/12)	1	
DConS46	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS46			Wind(10/12)	-1	
DConS47	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS47			Wind(11/12)	1	
DConS48	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS48			Wind(11/12)	-1	
DConS49	Linear Add	Yes	Dead	0.9	Dead (min) + Wind [Strength]
DConS49			Wind(12/12)	1	

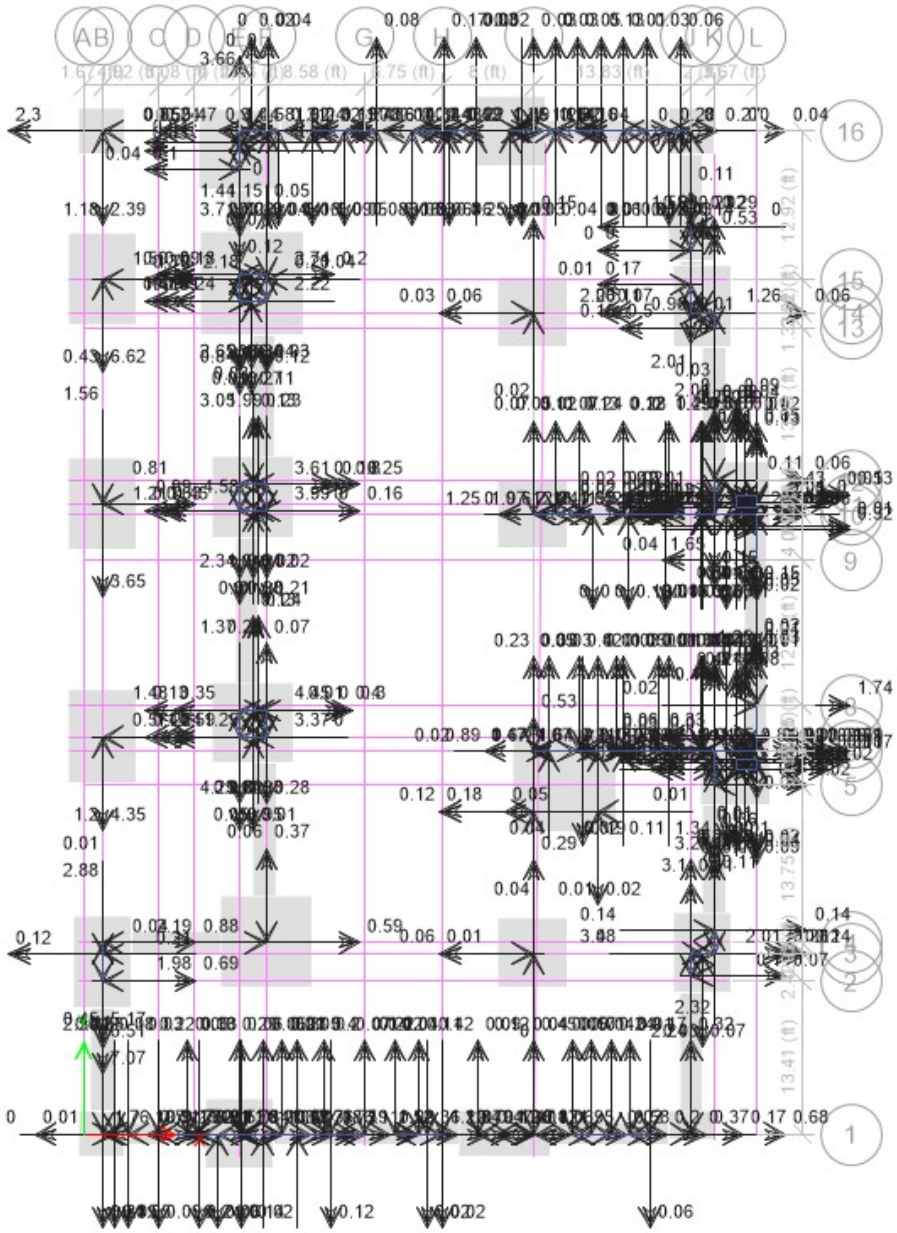
Table 4.3 - Load Combination Definitions (continued)

Name	Type	Is Auto	Load Name	SF	Notes
DConS50	Linear Add	Yes	Dead	0.9	Dead (min) - Wind [Strength]
DConS50			Wind(12/12)	-1	

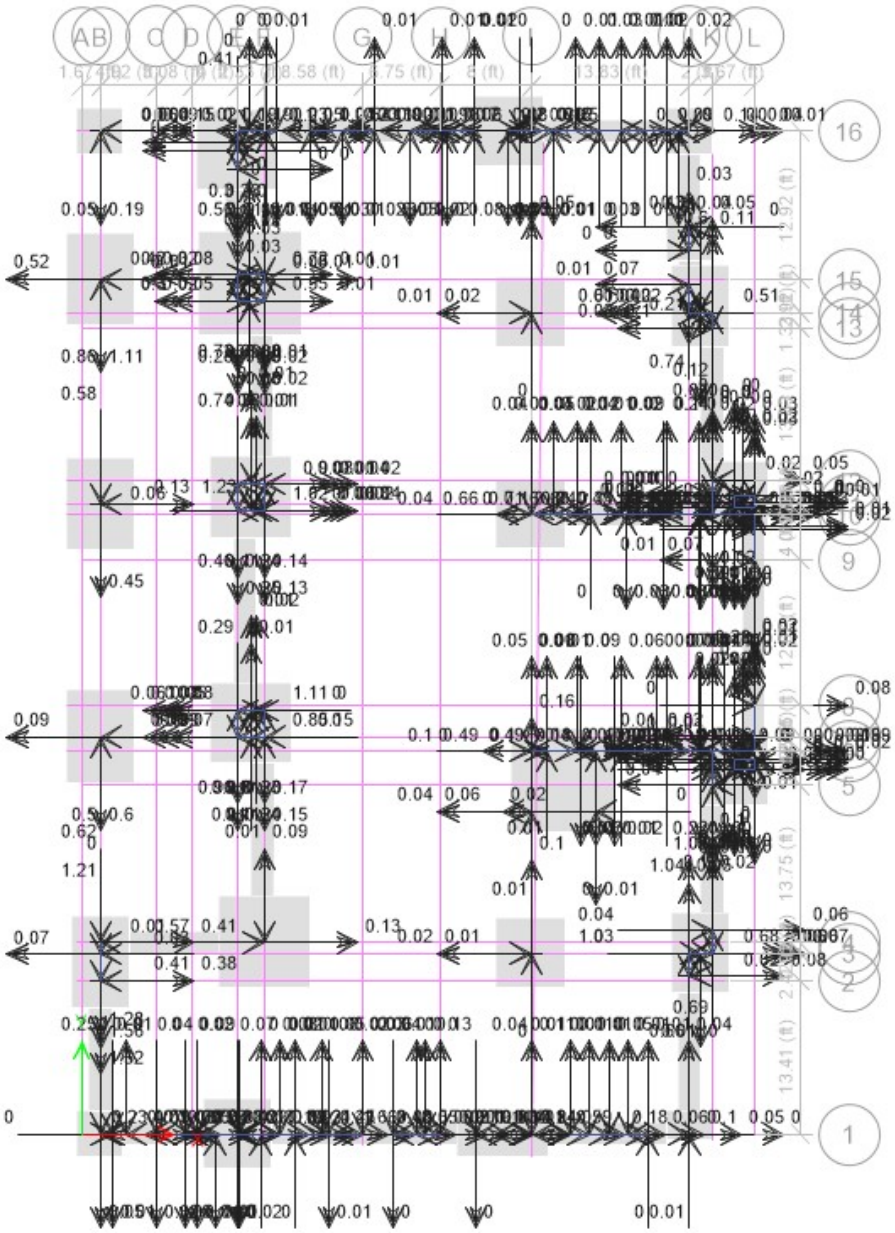

AB
C
D
E
F
G
H
I
J
K
L
1.67 (ft)
2 (ft)
8.08 (ft)
8.58 (ft)
6.75 (ft)
8 (ft)
13.83 (ft)
16.67 (ft)
W72-W
W73-W
W76-W
W36-W
W23-W
W2-W
W5-W
W7-W
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
12.92 (ft)
13.33 (ft)
12.67 (ft)
13.75 (ft)
13.41 (ft)
Y
X


AB
C
D
E
F
G
H
I
J
K
L
8.58 (ft)
6.75 (ft)
8 (ft)
13.83 (ft)
F80
F79
F81
F82
F83
F84
F74
F72
F70
F67
F66
F64
F60
F61
F58
F57
F51
F52
F53
F49
F50
F47
F42
F37
F36
F34
F33
F32
F31
F27
F24
F25
F22
F23
F21
F13
F14
F3
F4
F5
F6
F7
F8
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
12.92 (ft)
13.33 (ft)
12.67 (ft)
13.75 (ft)
13.41 (ft)

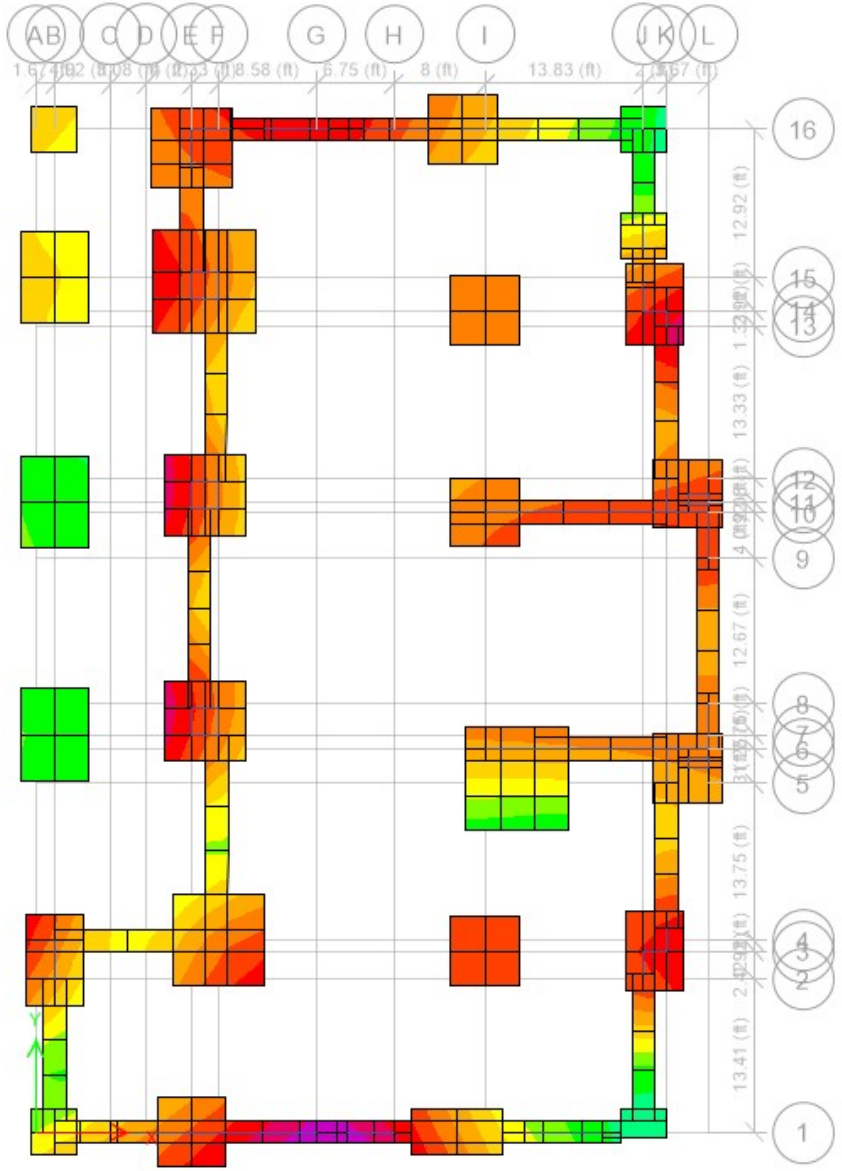
1 - Z = 0 (ft) Joint Loads (Dead_ABOVE)



1 - Z = 0 (ft) Joint Loads (Live_ABOVE)

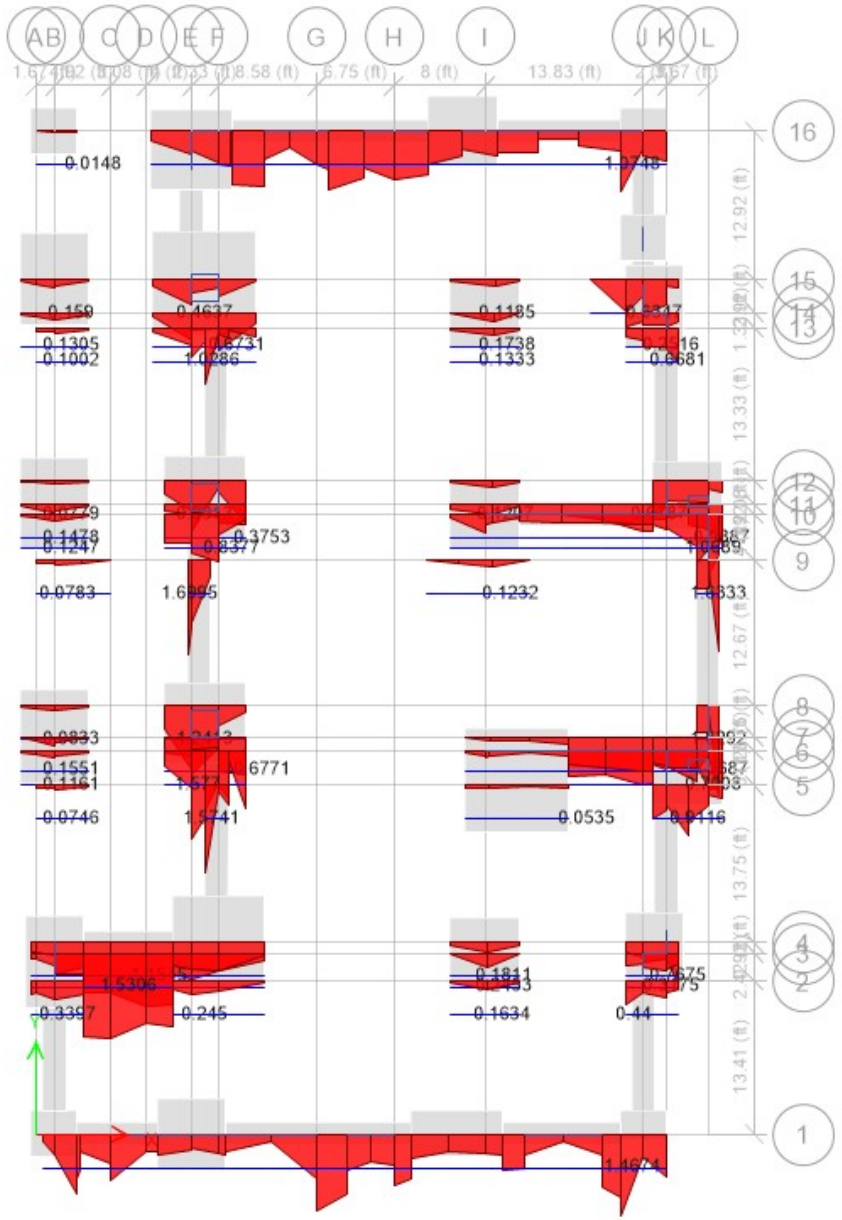


1 - Z = 0 (ft) Soil Pressures (Comb1) [lb/ft²]



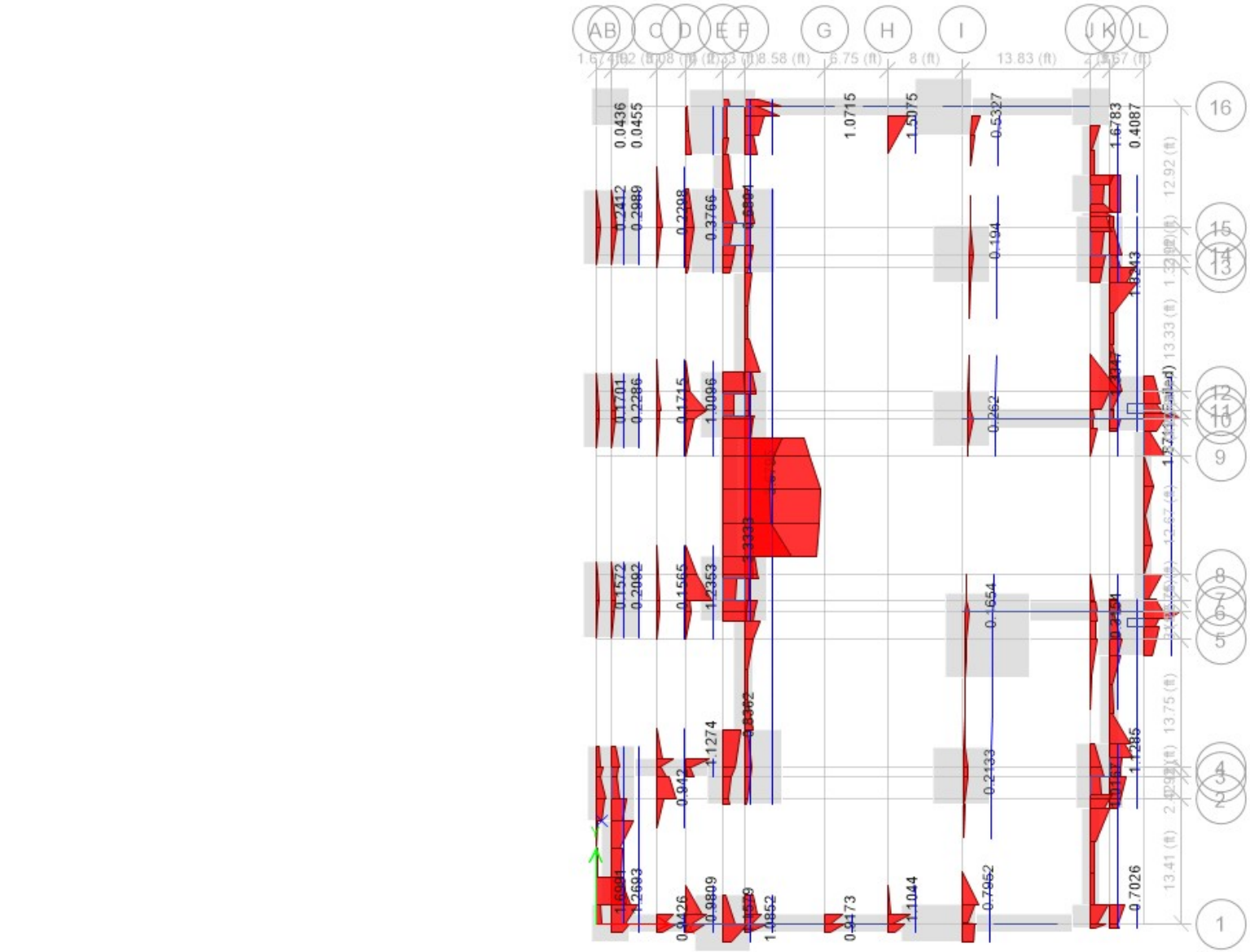
-2.31 -2.12 -1.92 -1.73 -1.54 -1.35 -1.15 -0.96 -0.77 -0.58 -0.38 -0.19

1 - Z = 0 (ft) Slab Strip Design - Layer A - Bottom Reinforcement Intensity (Enveloping Flexural) [in²/ft]



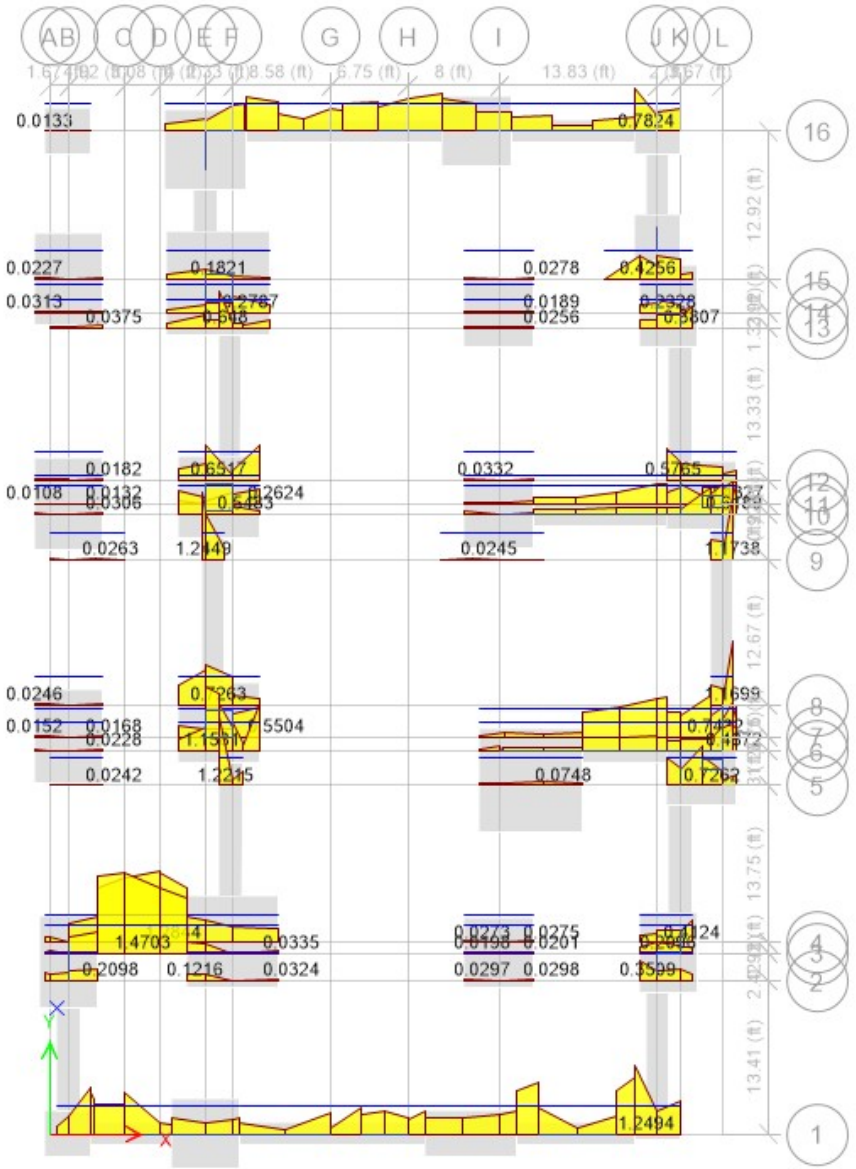
-16.0 -14.7 -13.4 -12.0 -10.7 -9.3 -8.0 -6.7 -5.3 -4.0 -2.7 -1.3

1 - Z = 0 (ft) Slab Strip Design - Layer B - Bottom Reinforcement Intensity (Enveloping Flexural) [in²/ft]

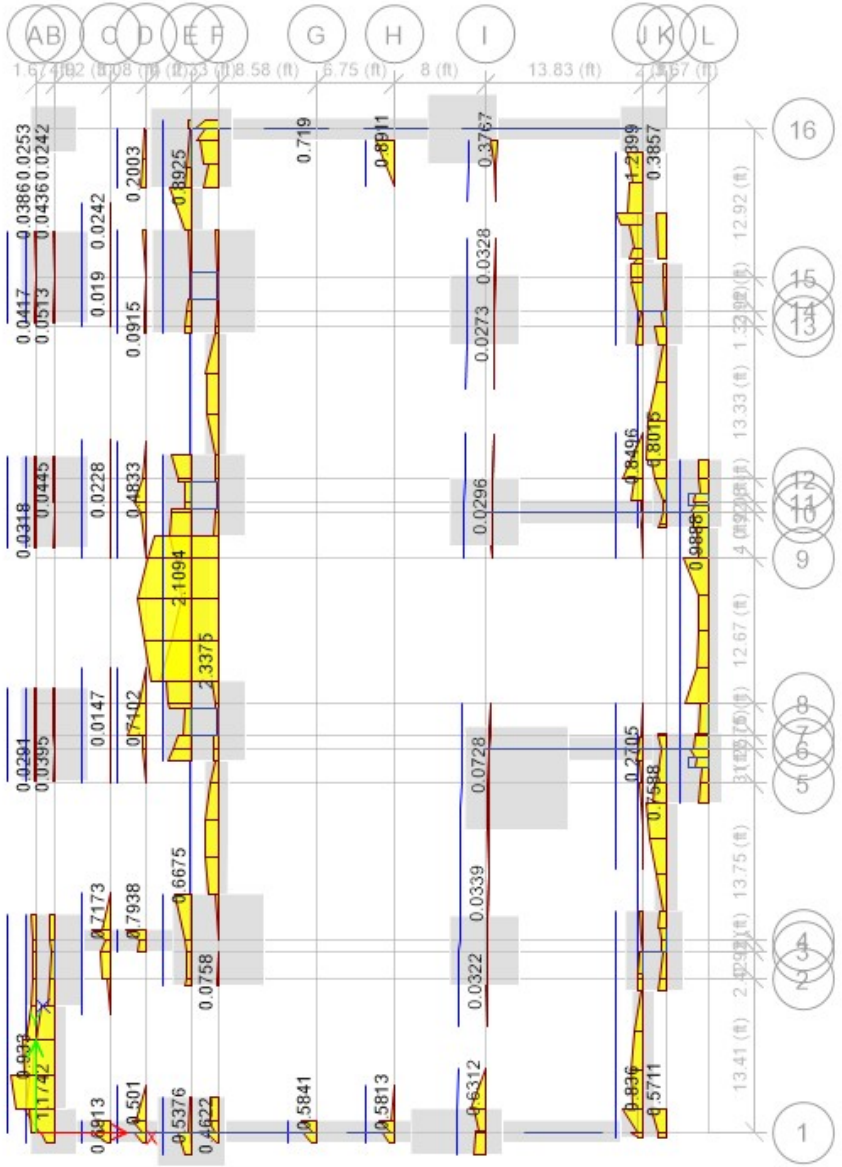


-16.0 -14.7 -13.4 -12.0 -10.7 -9.3 -8.0 -6.7 -5.3 -4.0 -2.7 -1.3

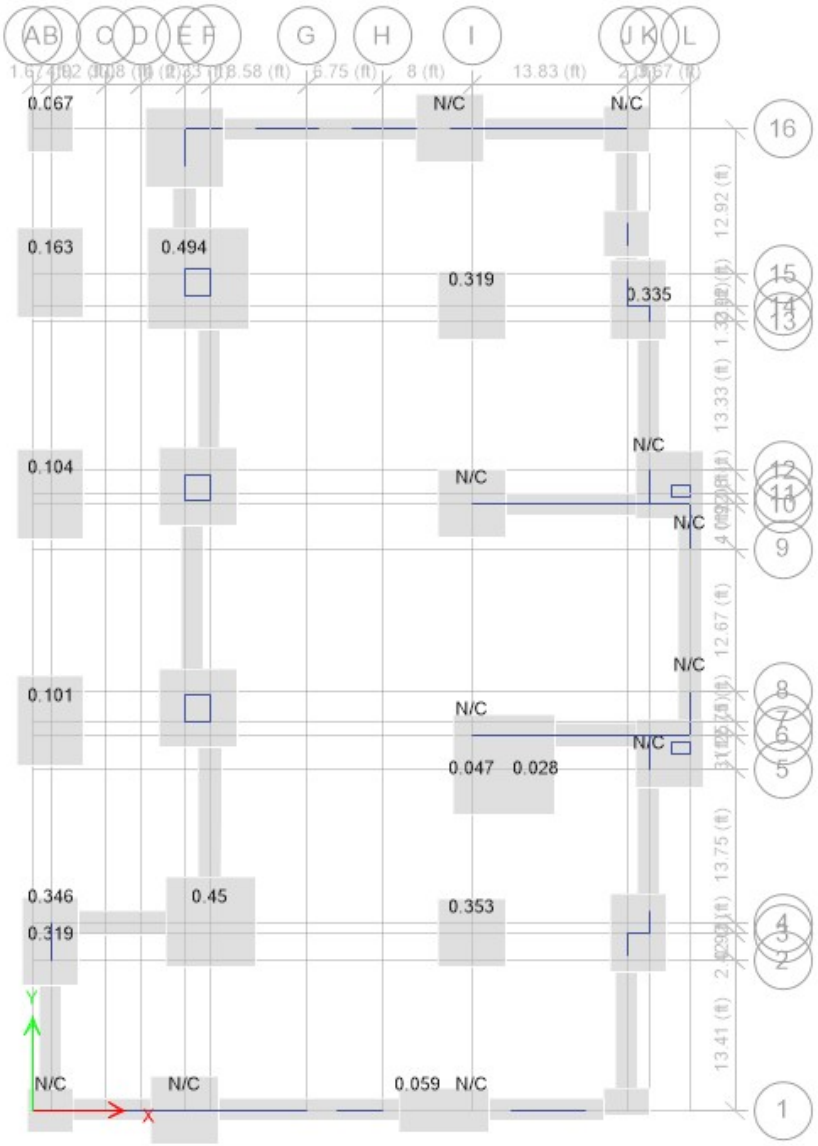
1 - Z = 0 (ft) Slab Strip Design - Layer A - Top Reinforcement Intensity (Enveloping Flexural) [in²/ft]



1 - Z = 0 (ft) Slab Strip Design - Layer B - Top Reinforcement Intensity (Enveloping Flexural) [in²/ft]



-16.0 -14.7 -13.4 -12.0 -10.7 -9.3 -8.0 -6.7 -5.3 -4.0 -2.7 -1.3


A B C D E F G H I J K L
13.83 (ft)
0.067
N/C
N/C
16
0.163
0.494
0.319
0.335
15
14
13
12.92 (ft)
13.33 (ft)
N/C
0.104
N/C
N/C
12
11
10
9
12.67 (ft)
N/C
0.101
N/C
N/C
0.047
0.028
8
7
6
5
13.75 (ft)
0.346
0.319
0.45
0.353
4
3
2
13.41 (ft)
N/C
N/C
0.059
N/C
1

ROCHELL ENGINEERING, INC.

Masonry Wall Design per TMS 402/602-16

1500 NW 89th Court – Suite 212, Doral, FL 33172 Tel: 305.649.4049

ROCHELL ENGINEERING

Project:

Page of
Proj. No.
Date
By

1500 NW 89th Ct.-Suite 212 • Doral, FL 33172 • Tel: 305.649.4049

Design of Masonry walls:

$F'_m = 1500 psi$

.2nd Level walls:

Roof DL = 622 plf

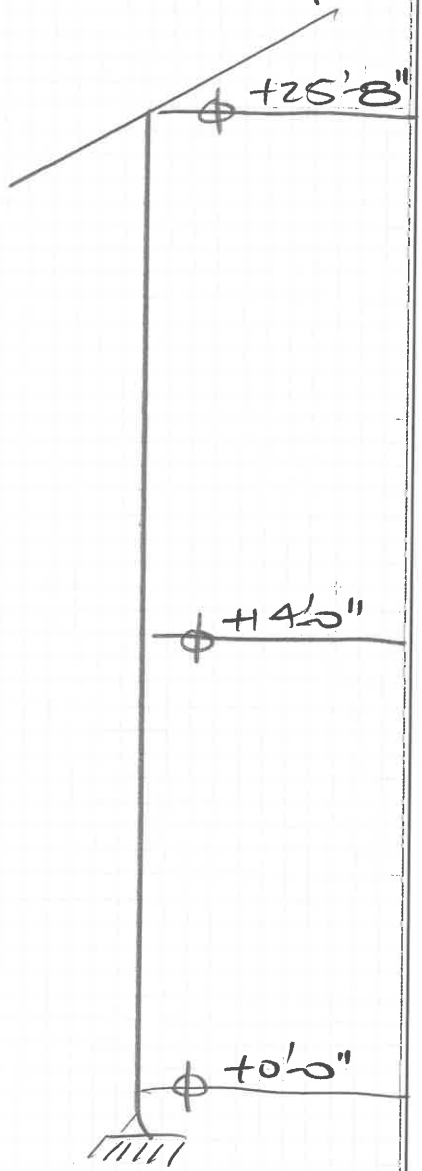
Roof LL = 632 plf

Uplift = -995 plf

Zone ④ = 48 psf

Zone ⑤ = 56.3 psf

openings = 2'-6" & 3'-0"



Provide: $F'_m = 1500 psi$

- #5 @ 32" o.c. Vert. Reinf @ Zone ④
- #5 @ 24" o.c. Vert. Reinf @ Zone ⑤
- 2 #7 Vert. Reinf @ sides of 2'-6" openings
- 2 #7 Vert. Reinf @ sides of 3'-0" opening

Rochell Engineering, Inc.
Consulting Engineers
1500 NW 89th Court - Suite 212
Doral, FL 33172

ROCHELL ENGINEERING, INC.

Project Name: De La Concepcion Residence
Wall ID: Second Level Masonry Wall (Zone 4)

8" Masonry Wall Design (Code Ref: TMS 402/602-16)

Input Data:

Wall Height, H =	11.67	ft.
Wall Thickness, t =	7.625	in.
Wall Vertical Reinforcing =	# 5	@ 32 in o.c.
Reinforcement Area, Ast =	0.31	sq. in.
Effective Section Width, b =	32	in.
Effective Depth, d =	3.81	in.
Tensile Strength, Fs=	24,000	psi
Comp. Strength, F'm =	1,500	psi
Mod. of Elasticity, Es =	29,000,000	psi
Mod. of Elasticity, Em =	1,350,000	psi

Dead Loads =	522	lbs./ft.
Live Loads =	632	lbs./ft.
Wind Uplift =	-995	lbs./ft.
Wind Loads =	48	psf
Lateral Loads =	128	lbs./ft.
Weight of Wall =	677	lbs./ft.

ASD Load Combinations: (per ASCE 7-16)

Dead Load =	1,199	lbs./ft.
Dead Load + Live Load =	1,831	lbs./ft.
0.6Dead + (Lateral+Uplift) =	3,045	lbs./ft.
Dead + 0.75Live + 0.75(Wind) =	346	lbs./ft.

Wall Analysis:

Acting Moment, M =	817	ft-lbs.	
Reinf. Ratio, p =	0.00254		
Radius of Gyration, r =	2.59		
h'/r =	54	< 99	OK
Moment of Inertia, I =	343.7	in^4/ft	
Net Block Area, An =	46.0	in^2/ft	

Deflection:

Max. Allowed, L/180 =	0.78	
Computed deflection, $5WL^4/384EI$ =	0.52	
Deflection Check =	OK	

Axial :

Fa = 0.25*F'm[1-(h'/140r)^2]=	319	psi	(Allowable Axial Compressive Stress)
fa(DL+LL) = P/An =	40	psi	(Max. Axial Compressive Stress)
fa[0.6DL+0.6(Lat+Upl)] =	66	psi	
fa(DL+0.75LL+0.75*0.6W) =	8	psi	
fa(DL) =	26	psi	

Bending:

Fb Allowable = 1/3 F'm =	495	psi	Max. Bending Stress, fb =	443	psi
n = Es / Em =	21.5				
k =	0.28		Steel Bending Stress, fs =	24,421	psi
j = 1-k/3 =	0.91		Add'l fs =	0	psi (Axial Tension)

Combined Stresses:

1. Axial Compressive Stresses	(DL+LL)	fa/Fa =	0.12	< 1.0	OK
2. Bending Comp. Stresses	0.6DL+ (Lat+Uplift)	fa/Fa + fb/Fb =	0.97	< 1.0	OK
3. Steel Bending Stresses		fs/Fs =	0.92	< 1.0	OK
4. Bending+Axial Comp.	DL + 0.75LL + 0.75(Wind) =		0.92	< 1.0	OK

Notes: *Masonry design assumes special inspection provided & conforming to 2020 FBC requirements*
Combined stresses results shall not exceed 1.0 unity value (Kd = 0.85)

Rochell Engineering, Inc.
Consulting Engineers
1500 NW 89th Court - Suite 212
Doral, FL 33172

ROCHELL ENGINEERING, INC.

Project Name:	De La Concepcion Residence
Wall ID:	Second Level Masonry Wall (Zone 5)

8" Masonry Wall Design (Code Ref: TMS 402/602-16)

Input Data:

Wall Height, H =	11.67	ft.	Dead Loads =	522	lbs./ft.
Wall Thickness, t =	7.625	in.	Live Loads =	632	lbs./ft.
Wall Vertical Reinforcing =	# 5	@ 24 in o.c.	Wind Uplift =	-995	lbs./ft.
Reinforcement Area, Ast =	0.31	sq. in.	Wind Loads =	56	psf
Effective Section Width, b =	24	in.	Lateral Loads =	112	lbs./ft.
Effective Depth, d =	3.81	in.	Weight of Wall =	712	lbs./ft.
Tensile Strength, Fs=	24,000	psi			
Comp. Strength, F'm =	1,500	psi			
Mod. of Elasticity, Es =	29,000,000	psi			
Mod. of Elasticity, Em =	1,350,000	psi			

ASD Load Combinations: (per ASCE 7-16)

Dead Load =	1,234	lbs./ft.
Dead Load + Live Load =	1,866	lbs./ft.
0.6Dead + (Lateral+Uplift) =	3,250	lbs./ft.
Dead + 0.75Live + 0.75(Wind) =	334	lbs./ft.

Wall Analysis:

Acting Moment, M =	953	ft-lbs.		Deflection:	
Reinf. Ratio, p =	0.00339			Max. Allowed, L/180 =	0.78
Radius of Gyration, r =	2.53			Computed deflection, $5WL^4/384EI$ =	0.58
h'/r =	55	< 99	OK	Deflection Check =	OK
Moment of Inertia, I =	355.3	in^4/ft			
Net Block Area, An =	51.3	in^2/ft			

Axial :

Fa = 0.25*F'm[1-(h'/140r)^2]=	316	psi	(Allowable Axial Compressive Stress)
fa(DL+LL) = P/An =	36	psi	(Max. Axial Compressive Stress)
fa[0.6DL+0.6(Lat+Upl)] =	63	psi	
fa(DL+0.75LL+0.75*0.6W) =	7	psi	
fa(DL) =	24	psi	

Bending:

Fb Allowable = 1/3 F'm =	495	psi	Max. Bending Stress, fb =	465	psi
n = Es / Em =	21.5				
k =	0.32		Steel Bending Stress, fs =	21,650	psi
j = 1-k/3 =	0.89		Add'l fs =	0	psi (Axial Tension)

Combined Stresses:

1. Axial Compressive Stresses	(DL+LL)	fa/Fa =	0.11	< 1.0	OK
2. Bending Comp. Stresses	0.6DL+ (Lat+Uplift)	fa/Fa + fb/Fb =	1.00	< 1.0	OK
3. Steel Bending Stresses		fs/Fs =	0.90	< 1.0	OK
4. Bending+Axial Comp.	DL + 0.75LL + 0.75(Wind) =		0.96	< 1.0	OK

Notes: *Masonry design assumes special inspection provided & conforming to 2020 FBC requirements*
Combined stresses results shall not exceed 1.0 unity value (Kd = 0.85)

ROCHELL ENGINEERING, INC.

Rochell Engineering, Inc.
Consulting Engineers
1500 NW 89th Court - Suite 212
Doral, FL 33172

Project Name: De La Concepcion Residence
Wall ID: Second Level wall with 2'-6" opening

8" Masonry Wall Design w/ Openings (Code Ref: TMS 402/602-16)

Input Data:

Member Height, H =	11.67	ft.	Dead Loads =	522	lbs./ft.
Masonry Opening Width=	2.5	ft.	Live Loads =	632	lbs./ft.
Wall Thickness, t =	7.625	in.	Wind Uplift =	-995	lbs./ft.
Wall Vertical Reinforcing =	# 5	@ 32 in o.c.	Wind Loads =	48	psf
Reinf. At Opening =	2	# 7	Lateral Loads =	172	lbs./ft.
Reinf. Area, Ast =	1.2	sq. in.	Wt. of Wall =	677	lbs./ft.
Effective Section Width, b =	28	in.			
Effective Depth, d =	3.81	in.			
Tensile Strength, Fs =	24,000	psi			
Comp. Strength, F'm =	1,500	psi			
Mod. of Elasticity, Es =	29,000,000	psi			
Mod. of Elasticity, Em =	1,350,000	psi			

Load Combinations: (per ASCE 7-16)		
Dead Load =	1,199	lbs./ft.
Dead Load + Live Load =	1,831	lbs./ft.
0.6Dead + (Lateral+ Uplift) =	-5	lbs./ft.
Dead + 0.75Live + 0.75(Wind) =	1056	lbs./ft.

Wall Analysis:

Acting Moment, M =	817	ft-lbs.	
Reinf. Ratio, p =	0.0112		
Radius of Gyration, r =	2.59		
h'/r =	54	< 99	OK
Moment of Inertia, I =	343.7	in^4/ft	
Net Block Area, An =	46.0	in^2/ft	

Axial :

Fa = 0.25*F'm[1-(h'/140r)^2] =	319	psi	(Allowable Axial Compressive Stress)
fa(DL+LL) = P/An =	40	psi	(Max. Axial Compressive Stress)
fa[0.6DL+0.6(Lateral+Uplift)] =	0	psi	
fa(DL+0.75LL+0.75*0.6W) =	35	psi	

Bending:

Fb = 1/3 F'm =	495	psi	fb =	419	psi
n = Es/Em =	21.5				
k =	0.49		fs =	9,201	psi
j = 1-k/3 =	0.84		Add'l fs =	11	psi (Axial Tension)

Combined Stresses:

1. Axial Compressive Stresses	(DL+LL)	fa/Fa + fb/Fb =	0.12	< 1.0	OK
2. Bending Comp. Stresses	(0.6Dl+Lat+Upl)	fa/Fa + fb/Fb =	0.85	< 1.0	OK
3. Steel Bending Stresses		fs/Fs =	0.38	< 1.0	OK
4. Bending + Axial Comp.	DL+0.75LL+0.75(W) =		0.87	< 1.0	OK

Notes: *Masonry design assumes special inspection provided & conforming to 2020 FBC requirements*
Combined stresses results shall not exceed 1.0 unity value (Kd = 0.85)

ROCHELL ENGINEERING, INC.

Rochell Engineering, Inc.
Consulting Engineers
1500 NW 89th Court - Suite 212
Doral, FL 33172

Project Name: De La Concepcion Residence
Wall ID: Second Level wall with 3'-0" opening

8" Masonry Wall Design w/ Openings (Code Ref: TMS 402/602-16)

Input Data:

Member Height, H =	11.67	ft.	Dead Loads =	522	lbs./ft.
Masonry Opening Width=	3	ft.	Live Loads =	632	lbs./ft.
Wall Thickness, t =	7.625	in.	Wind Uplift =	-995	lbs./ft.
Wall Vertical Reinforcing =	# 5	@ 32 in o.c.	Wind Loads =	48	psf
Reinf. At Opening =	2	# 7	Lateral Loads =	184	lbs./ft.
Reinf. Area, Ast =	1.2	sq. in.	Wt. of Wall =	677	lbs./ft.
Effective Section Width, b =	28	in.			
Effective Depth, d =	3.81	in.			
Tensile Strength, Fs =	24,000	psi			
Comp. Strength, F'm =	1,500	psi			
Mod. of Elasticity, Es =	29,000,000	psi			
Mod. of Elasticity, Em =	1,350,000	psi			

Load Combinations: (per ASCE 7-16)		
Dead Load =	1,199	lbs./ft.
Dead Load + Live Load =	1,831	lbs./ft.
0.6Dead + (Lateral+ Uplift) =	-5	lbs./ft.
Dead + 0.75Live + 0.75(Wind) =	1065	lbs./ft.

Wall Analysis:

Acting Moment, M =	817	ft-lbs.	
Reinf. Ratio, p =	0.0112		
Radius of Gyration, r =	2.59		
h'/r =	54	< 99	OK
Moment of Inertia, I =	343.7	in^4/ft	
Net Block Area, An =	46.0	in^2/ft	

Axial :

Fa = 0.25*F'm[1-(h'/140r)^2] =	319	psi	(Allowable Axial Compressive Stress)
fa(DL+LL) = P/An =	40	psi	(Max. Axial Compressive Stress)
fa[0.6DL+0.6(Lateral+Uplift)] =	0	psi	
fa(DL+0.75LL+0.75*0.6W) =	38	psi	

Bending:

Fb = 1/3 F'm =	495	psi	fb =	448	psi
n = Es/Em =	21.5				
k =	0.49		fs =	9,843	psi
j = 1-k/3 =	0.84		Add'l fs =	11	psi (Axial Tension)

Combined Stresses:

1. Axial Compressive Stresses	(DL+LL)	fa/Fa + fb/Fb =	0.12	< 1.0	OK
2. Bending Comp. Stresses	(0.6Dl+Lat+Upl)	fa/Fa + fb/Fb =	0.90	< 1.0	OK
3. Steel Bending Stresses		fs/Fs =	0.41	< 1.0	OK
4. Bending + Axial Comp.		DL+0.75LL+0.75(W) =	0.93	< 1.0	OK

Notes: *Masonry design assumes special inspection provided & conforming to 2020 FBC requirements*
Combined stresses results shall not exceed 1.0 unity value (Kd = 0.85)

ROCHELL ENGINEERING

Project:

Page ____ of ____
Proj. No.
Date
By

1500 NW 89th Ct.-Suite 212 • Doral, FL 33172 • Tel: 305.649.4049

Ground level walls:

Roof DL = 522 plf
Roof LL = 632 plf
2nd level DL = 800 plf
2nd level SDL = 200 plf
2nd level LL = 320 plf
CMU wall DL = 700 plf

ΣDL = 2222 plf
ΣLL = 952 plf

Zone (4) = 47 psf

Zone (5) = 53 psf

Provide: f'_m = 2000 psi

- #7 @ 32" o.c. Vert. reinf. @ Zone (4)
- #7 @ 24" o.c. Vert. reinf. @ Zone (5)

Rochell Engineering, Inc.
Consulting Engineers
1500 NW 89th Court – Suite 212
Doral, FL 33172

ROCHELL ENGINEERING, INC.

Project Name: De La Concepcion Residence
Wall ID: Ground Level Masonry Wall (Zone 4)

8" Masonry Wall Design (Code Ref: TMS 402/602-16)

Input Data:

Wall Height, H =	14	ft.
Wall Thickness, t =	7.625	in.
Wall Vertical Reinforcing =	# 7	@ 32 in o.c.
Reinforcement Area, Ast =	0.6	sq. in.
Effective Section Width, b =	32	in.
Effective Depth, d =	3.81	in.
Tensile Strength, Fs=	24,000	psi
Comp. Strength, F'm =	2,000	psi
Mod. of Elasticity, Es =	29,000,000	psi
Mod. of Elasticity, Em =	1,800,000	psi

Dead Loads =	2222	lbs./ft.
Live Loads =	952	lbs./ft.
Wind Uplift =	-995	lbs./ft.
Wind Loads =	47	psf
Lateral Loads =	125	lbs./ft.
Weight of Wall =	812	lbs./ft.

ASD Load Combinations: (per ASCE 7-16)

Dead Load =	3,034	lbs./ft.
Dead Load + Live Load =	3,986	lbs./ft.
0.6Dead + (Lateral+Uplift) =	5,076	lbs./ft.
Dead + 0.75Live + 0.75(Wind) =	2284	lbs./ft.

Wall Analysis:

Acting Moment, M =	1,152	ft-lbs.	
Reinf. Ratio, p =	0.00492		
Radius of Gyration, r =	2.59		
h'/r =	65	< 99	OK
Moment of Inertia, I =	343.7	in^4/ft	
Net Block Area, An =	46.0	in^2/ft	

Deflection:

Max. Allowed, L/180 =	0.93	
Computed deflection, $5WL^4/384EI$ =	0.79	
Deflection Check =	OK	

Axial :

Fa = 0.25*F'm[1-(h'/140r)^2]=	393	psi	(Allowable Axial Compressive Stress)
fa(DL+LL) = P/An =	87	psi	(Max. Axial Compressive Stress)
fa[0.6DL+0.6(Lat+Upl)] =	110	psi	
fa(DL+0.75LL+0.75*0.6W) =	50	psi	
fa(DL) =	66	psi	

Bending:

Fb Allowable = 1/3 F'm =	660	psi	Max. Bending Stress, fb =	545	psi
n = Es / Em =	16.1				
k =	0.33		Steel Bending Stress, fs =	18,089	psi
j = 1-k/3 =	0.89		Add'l fs =	0	psi (Axial Tension)

Combined Stresses:

1. Axial Compressive Stresses	(DL+LL)	fa/Fa =	0.22	< 1.0	OK
2. Bending Comp. Stresses	0.6DL+ (Lat+Uplift)	fa/Fa + fb/Fb =	0.98	< 1.0	OK
3. Steel Bending Stresses		fs/Fs =	0.75	< 1.0	OK
4. Bending+Axial Comp.	DL + 0.75LL + 0.75(Wind) =		0.95	< 1.0	OK

Notes: *Masonry design assumes special inspection provided & conforming to 2020 FBC requirements*
Combined stresses results shall not exceed 1.0 unity value (Kd = 0.85)

Rochell Engineering, Inc.
Consulting Engineers
1500 NW 89th Court - Suite 212
Doral, FL 33172

ROCHELL ENGINEERING, INC.

Project Name:	De La Concepcion Residence
Wall ID:	Ground Level Masonry Wall (Zone 5)

8" Masonry Wall Design (Code Ref: TMS 402/602-16)

Input Data:

Wall Height, H =	14	ft.	
Wall Thickness, t =	7.625	in.	
Wall Vertical Reinforcing =	# 7	@ 24 in o.c.	
Reinforcement Area, Ast =	0.6	sq. in.	
Effective Section Width, b =	24	in.	
Effective Depth, d =	3.81	in.	
Tensile Strength, Fs=	24,000	psi	
Comp. Strength, F'm =	2,000	psi	
Mod. of Elasticity, Es =	29,000,000	psi	
Mod. of Elasticity, Em =	1,800,000	psi	

Dead Loads =	2222	lbs./ft.
Live Loads =	952	lbs./ft.
Wind Uplift =	-995	lbs./ft.
Wind Loads =	54	psf
Lateral Loads =	108	lbs./ft.
Weight of Wall =	854	lbs./ft.

ASD Load Combinations: (per ASCE 7-16)

Dead Load =	3,076	lbs./ft.
Dead Load + Live Load =	4,028	lbs./ft.
0.6Dead + (Lateral+Uplift) =	5,370	lbs./ft.
Dead + 0.75Live + 0.75(Wind) =	2271	lbs./ft.

Wall Analysis:

Acting Moment, M =	1,323	ft-lbs.	
Reinf. Ratio, p =	0.00656		
Radius of Gyration, r =	2.53		
h'/r =	66	< 99	OK
Moment of Inertia, I =	355.3	in^4/ft	
Net Block Area, An =	51.3	in^2/ft	

Deflection:

Max. Allowed, L/180 =	0.93	
Computed deflection, $5WL^4/384EI$ =	0.88	
Deflection Check =	OK	

Axial :

Fa = 0.25*F'm[1-(h'/140r)^2]=	388	psi	(Allowable Axial Compressive Stress)
fa(DL+LL) = P/An =	79	psi	(Max. Axial Compressive Stress)
fa[0.6DL+0.6(Lat+Upl)] =	105	psi	
fa(DL+0.75LL+0.75*0.6W) =	44	psi	
fa(DL) =	60	psi	

Bending:

Fb Allowable = 1/3 F'm =	660	psi	Max. Bending Stress, fb =	567	psi
n = Es / Em =	16.1				
k =	0.37		Steel Bending Stress, fs =	15,820	psi
j = 1-k/3 =	0.88		Add'l fs =	0	psi (Axial Tension)

Combined Stresses:

1. Axial Compressive Stresses	(DL+LL)	fa/Fa =	0.20	< 1.0	OK
2. Bending Comp. Stresses	0.6DL+ (Lat+Uplift)	fa/Fa + fb/Fb =	1.00	< 1.0	FALSE
3. Steel Bending Stresses		fs/Fs =	0.66	< 1.0	OK
4. Bending+Axial Comp.	DL + 0.75LL + 0.75(Wind) =		0.97	< 1.0	OK

Notes: *Masonry design assumes special inspection provided & conforming to 2020 FBC requirements*
Combined stresses results shall not exceed 1.0 unity value (Kd = 0.85)

ROCHELL ENGINEERING, INC.

Geotechnical Report

1500 NW 89th Court – Suite 212, Doral, FL 33172 Tel: 305.649.4049

CVIII ENGINEERING GROUP, INC.
GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

February 28, 2022
Order No. 22-0228

PACHECO ARCHITECTURE
4990 SW 72 AVENUE, SUITE 101. MIAMI, FL 33155

Reference: Report of Subsurface Soil Exploration and Recommendations
Evaluation of Subsurface Conditions
For the Proposed Construction

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156

Dear Sir / Madam:

Pursuant to your request and authorization, CVIII Engineering Group, Inc., conducted a subsurface investigation at the above referenced project. The investigation was performed on February 24, 2022.

The purpose of the investigation was to examine and document the existing soil conditions at the site and provide you with geotechnical recommendations for supporting the proposed construction. This report presents our findings and recommendations. To achieve the desired objective, three (3) standard penetration test borings were performed at the above referenced property.

Test Method

The boring was conducted in accordance with procedures outlined for standard penetration test and spilt spoon sampling of soils by ASTM Method D-1586.

A two (2') feet long two (2") inches O.D. Spilt Spoon Sampler was driven into the ground by successive blows with a 140 lb. Hammer dropping thirty (30") inches. The soil sampler was driven two (2') feet at a time then extracted for visual examination and classification of the retained soil sample.

The numbers of blows required for one (1') foot penetration of the sampler is designated as "N" (Known as the standard penetration resistance value). The "N" Value provides an indication of the relative density of non-cohesive soils and the consistency of cohesive soils.

Suitable corrections are applied to this number in order to include the effects of soil overburden pressure and other factors. A general evaluation of soils is made from the established correlation between "N" and the relative density of consistency of soils.

This dynamic method of soil testing has been widely accepted by foundation engineers and architects to conservatively evaluate the bearing capacity of soils. A continuous drilling and sample procedure were used. The samples were taken at intervals of two (2') feet, or at every change of soil characteristic.

Subsurface Conditions

Sub-surface exploration consisted of three (3) standard penetration test borings conducted conforming to the guidelines as set forth in ASTM D-1586. A review of the Test Boring Report generally indicates that the site is mantled as follow:

(B1) 0'0" to 0'2" topsoil, 0'2" to 1'0" brown sand. Beneath, soft sandy limestone was encountered throughout the maximum explored depth of fifteen (15) feet below existing grade.

(B2) 0'0" to 0'2" topsoil, 0'2" to 2'0" brown sand. Beneath, soft sandy limestone was encountered throughout the maximum explored depth of fifteen (15) feet below existing grade.

(B3) 0'0" to 0'2" topsoil, 0'2" to 1'0" brown sand. Beneath, soft sandy limestone was encountered throughout the maximum explored depth of fifteen (15) feet below existing grade.

Groundwater

The immediate depths to groundwater measurements presented in this report are referenced to adjoining surface grade at the time the soil borings were performed. The stabilized depth to groundwater or that measured a few days later may differ substantially from the immediate depths measured at the time the soil borings were performed and as such may not be an unreliable indicator of future groundwater elevations.

Groundwater elevations may vary substantially over time due to many area specific parameters such as rainfall, droughts, storm events, flood control activities, nearby surface water bodies, tidal activity, construction dewatering, well field activity and other factors. Given these factors and other considerations, the groundwater depth information provided in this report should be considered approximate with substantial variations from those values possible.

Groundwater at the time of testing was encountered at approximate depths of 8'0" BGEL.

Foundation Recommendations

Our observations, exploration, and evaluation, supplemented by a review of sub-surface profile developed from the soil engineering Standard Penetration Test, indicates that the sub-surface conditions at the site can provide support after soil improvement as recommended below is completed. Please refer to the soil improvement recommendation for bearing capacity criteria.

Soil Improvement Recommendation

Bottom of footing:

We recommend any existing vegetation and demolition debris be excavated and stripped from the proposed bottom of footing area until reaching the limestone bedrock formation. After excavation is completed, the bottom of footing should be back filled with lime rock fill material to the desired elevation. Densification and leveling of the soils should be performed at the bottom area plus an extra 2-feet-wide perimeter extending beyond the outside lines of the footprint layout limits where practical. Once soil improvement has taken place as recommended, the footing shall bear a soil bearing capacity not to exceed 2,500 pounds per square foot.

Bottom of Swimming Pool foundation:

We recommend any existing vegetation and demolition debris be excavated and stripped from the proposed bottom of swimming pool area until reaching the designed depth plus an extra foot of material. After excavation is completed, the structural bottom of swimming pool foundation area should be back filled with #57 rock material. Densification and leveling of the soils should be performed at the bottom area plus a 1-foot-wide perimeter extending beyond the outside lines of the swimming pool footprint layout limits where practical. Once soil improvement has taken place as recommended, the bottom of swimming pool foundation shall bear a soil bearing capacity not to exceed 2000 pounds per square foot.

Fill Placement

New fill materials must be placed under engineering supervision of a Geotechnical Engineer. The fill should be inorganic granular soils free from deleterious materials. We recommend using quality crushed lime rock mixed with lime sand. The fill should be placed in lifts of no greater than 12 inches thick, and each lift should be compacted to 95% of the maximum dry density as determined by the Modified Compaction Test (ASTM D1557). In restricted areas where a small compactor must be used, the lift thickness should be reduced to 6 inches, as directed by a Geotechnical Engineer.

Prior to initiating compaction operations, representative samples of the structural fill material to be used and acceptable in-place soils should be collected and tested to determine their compaction and classification characteristics. The maximum dry density, optimum moisture content, gradation and plasticity characteristics should be determined. These tests are needed for compaction quality control of the structural fill and existing soils, and to determine if the fill material is acceptable.

General Information

Regardless of the thoroughness of geotechnical exploration there is always a possibility that conditions on the subject property (site) may be different from those at the test locations reported in our boring log. Changes in the submitted project details or the discovery of any site or varying subsurface conditions prior to and/or during construction which deviate from the data obtained in this exploration should be immediately reported to us so that the condition or change can be evaluated, and appropriate action taken. We request the opportunity to review the final plans and specifications to assure that the intent of the recommendations of this report is properly interpreted and incorporated.

Our client for this geotechnical evaluation was:

PACHECO ARCHITECTURE
4990 SW 72 AVENUE, SUITE 101. MIAMI, FL 33155

The conclusions provided by CVIII Engineering Group, Inc., are based solely on the information presented in this report. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval. If we can be of any further assistance with the design or construction services, or if you need additional information, please feel free to contact us at your convenience.

Attachments: Limitations of Liability, Boring logs (B1, B2, B3), Boring test location site plan.

Respectfully,

CVIII ENGINEERING GROUP, INC.
Daniel Morao, P.E.
Professional Engineer No. 87771
State of Florida

DANIEL MORAO LICENSE No. 87771 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Daniel Morao
Date: 2022.11.09 14:31:53 -05'00'
Adobe Acrobat version: 2022.003.20258

LIMITATIONS OF LIABILITY

WARRANTY

We warrant the service performed by CVIII Engineering Group, Inc., are conducted in a manner consistent with the level of skill and care ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranties expressed, expressed or implied, are made. While the services of CVIII Engineering Group, Inc., are an integral and valuable warrant, guarantee, or insure the quality or completeness of services or satisfaction performance provided by other members of the construction process and/or the construction plans and specifications which we have not prepared, nor the ultimate performance of building site materials.

As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

SUBSURFACE EXPLORATION

Subsurface exploration is normally accomplished by test borings. The soil boring log includes sampling information, description of the materials recovered, approximate depths of boundaries between soil strata and groundwater data. The log represents conditions specifically at the location and time the boring was made. The boundaries between different soil strata are indicated at specific depths; however, these depths are in fact approximate and dependent upon the frequency of sampling. The transition between soil stratum are often gradual. Water level readings are made at the time the boring was performed and cam change with the time, precipitation, canal levels, local well drawdown, and others factors.

Regardless of the thoroughness of a geotechnical exploration there is always a possibility that conditions may be different from those of the locations; therefore, CVIII Engineering Group, Inc., does not guarantee any subsoil condition surrounding the bore test hole. For a more accurate portrayal of subsurface conditions, the site contractor should perform test pits. If different conditions are encountered, CVIII Engineering Group, Inc., shall be notified to review the findings and make any recommendations as needed.

LABORATORY AND FIELD TESTS

Test are performed in accordance with specific ASTM Standards unless otherwise indicated. All criteria included in a given ASTM Standard are not always required and performed. Each test report indicates the measurements and determinations actually made.

ANALYSIS AND RECOMMENDATIONS

The geotechnical report is prepared primarily to aid in the design of site work and structural foundations. Although the information in the report is expected to be sufficient for the purposes, it is not intended to determine the cost of construction or to stand alone as construction specifications. In accepting this report, the client understands that all data from the soil boring is intended for foundation analysis only and is not to be used for excavating, backfilling or pricing estimates. The site contractor must familiarize themselves with the job site conditions.

Report recommendations are based primarily on data from test borings made at the locations shown on the test boring report. Soil variations may exist between boring and may not become evident until construction. If variations are then noted, CVIII Engineering Group, Inc., should be contacted so that field conditions can be examined and recommendations revised if necessary.

The Geotechnical report states our understanding as to the location, dimensions, and structural features proposed of the site. Any significant changes in the nature, design, or location of the site improvements must be communicated to CVIII Engineering Group, Inc., so that the Geotechnical analysis, conclusion, and recommendations can be appropriately adjusted.

CONSTRUCTION OBSERVATIONS

Construction observations and testing is an important element of Geotechnical services. The Geotechnical Engineer's Field representative (Field Rep.) is the "owner's representative" observing the work of the contractor, performing test, and reporting data from such test and observations. The Geotechnical Engineer's Field Representative does not direct the contractor's construction means, methods, operations, or personnel. The Field Rep. does not interfere with the relationship between the owner and the contractor, and except as an observer, does not become substitute owner on site. The Field Rep. is only collecting data for our Engineer to review.

The Field Rep, is responsible for his/her safety only, but has no responsibility for the safety of other personnel and/or the general public at the site. If the Field Rep, does not fell that the site is offering a safe environment for him/her, the Field Rep, will stop his/her observation/ testing until he/she deems the site is safe. The Field Rep, is an important member of a team whose responsibility is to observe the test and work being done and report to the owner whether that work is being carried out in general conformance with the plans and specifications.

CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

Boring Log

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156 - Order #: 22-0228 – B1

Depth (Ft.)	Soil Description	Sample No.	HAMMER	BLOWS	"N"
1	0'0" to 0'2" topsoil	1	1	2	
2	0'2" to 1'0" brown sand		6	4	8
3	1'0" to 15'0" soft sandy limestone	2	8	6	
4			10	8	16
5		3	10	10	
6			12	10	22
7		4	10	15	
8			8	20	23
9		5	14	8	
10			12	12	20
11		6	10	10	
12			10	10	20
13		7	12	12	
14			12	14	24
15	End of Boring 15'0"	8	14	12	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Groundwater at the time of testing was encountered at 8'0" BGEL.

CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

Boring Log

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156 - Order #: 22-0228 – B2

Depth (Ft.)	Soil Description	Sample No.	HAMMER	BLOWS	"N"
1	0'0" to 0'2" topsoil	1	2	1	
2	0'2" to 2'0" brown sand		1	2	2
3	2'0" to 15'0" soft sandy limestone	2	10	4	
4			6	10	10
5		3	10	6	
6			18	12	14
7		4	8	10	
8			8	10	18
9		5	10	8	
10			12	8	20
11		6	12	8	
12			10	10	18
13		7	10	12	
14			8	10	20
15	End of Boring 15'0"	8	8	10	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Groundwater at the time of testing was encountered at 8'0" BGEL.

CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

Boring Log

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156 - Order #: 22-0228 – B3

Depth (Ft.)	Soil Description	Sample No.	HAMMER	BLOWS	"N"
1	0'0" to 0'2" topsoil	1	1	1	
2	0'2" to 1'0" brown sand		1	2	2
3	1'0" to 15'0" soft sandy limestone	2	12	12	
4			18	16	30
5		3	8	10	
6			16	10	26
7		4	16	10	
8			12	8	22
9		5	10	8	
10			10	8	18
11		6	12	10	
12			14	10	24
13		7	14	12	
14			12	10	24
15	End of Boring 15'0"	8	8	8	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Groundwater at the time of testing was encountered at 8'0" BGEL.

CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

Boring Test Location Site Plan

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156 - Order #: 22-0228

ROCHELL ENGINEERING, INC.

Notice of Acceptance (NOA)

1500 NW 89th Court – Suite 212, Doral, FL 33172 Tel: 305.649.4049

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

Nu-Vue Industries, Inc.
1055 East 29th Street
Hialeah, FL 33013

SCOPE: This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER-Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

DESCRIPTION: Series AB, NVSTA, NVHTA, NVTHJ, IKE, NVTT and NVHC-37 Steel Wood Connectors

APPROVAL DOCUMENT: Drawing No. **NU-1**, titled "Truss and Top Plate Anchors", sheets 1 through 4 of 4, dated 08/18/2020, prepared by Nu-Vue Industries, Inc., signed and sealed by Vipin N. Tolat, P.E., bearing the Miami-Dade County Product Control revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: None

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/series, and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA **revises NOA # 18-0312.06** and consists of this page 1 and evidence pages E-1, E-2, E-3 and E-4, as well as approval document mentioned above.

The submitted documentation was reviewed by **Carlos M. Utrera, P.E.**

MIAMI-DADE COUNTY APPROVED

NOA No. 20-0901.05
Expiration Date: May 22, 2023
Approval Date: November 5, 2020

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. Evidence Submitted Under Previous NOAs

A. DRAWINGS *"Submitted under NOA #16-0201.22"*

1. Drawing No. **NU-1**, titled "Truss and Top Plate Anchors", sheets 1 through 4 of 4, dated 02/18/2008, with last revision dated 01/25/2016, prepared by Nu-Vue Industries, Inc., signed and sealed by Vipin N. Tolat, P.E.

B. TESTS *"Submitted under NOA # 08-0325.02"*

Test reports on wood connectors per ASTM D1761-88 by Product Testing, Inc., signed and sealed by C. R. Caudel, P.E.

	Report No.	Wood Connector	Load Direction	Date
1.	05-5195A	AB-5	F1 and F2	02/15/08
2.	05-5196A	AB-7	F1 and F2	02/15/08
3.	04-4995	NVTHJ-26	Upward	01/31/05
4.	04-4996	NVTHJ-28	Upward	01/31/05
5.	05-5612	IKE-1	Upward, L1 and L2	03/20/06
6.	06-5622	IKE-2	Upward, L1 and L2	05/01/06
7.	04-4908	NVTT	Upward and L1	07/21/04
8.	03-4631	NVTT	Upward and L1	06/21/04
9.	08-6711	NVHC-37	Upward, L1 and L2	03/14/08
10.	04-4641	NVSTA	Upward, L1 and L2	03/17/04
11.	04-4642	NVHTA	Upward, L1 and L2	03/22/04

C. CALCULATIONS *"Submitted under NOA # 08-0325.02"*

1. Shear value of common wire nails and steel plate tensile calculations, prepared by Vipin N. Tolat, P.E., Consulting Engineer, dated 03/20/2008, signed and sealed by Vipin N. Tolat, P.E.

D. QUALITY ASSURANCE

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

E. MATERIAL CERTIFICATIONS

1. None.

F. STATEMENTS *"Submitted under NOA #16-0201.22"*

1. Statement letter of code conformance to the 5th edition (2014) FBC and of no financial interest, dated 01/29/2016, signed and sealed by Vipin N. Tolat, P.E.

"Submitted under NOA # 13-0206.17"

2. Statement letter of code conformance to 2010 FBC and no financial interest, dated 01/31/2013, signed and sealed by Vipin N. Tolat, P.E.

Carlos M. Utrera, P.E.
Product Control Examiner
NOA No. 20-0901.05
Expiration Date: May 22, 2023
Approval Date: November 5, 2020

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

2. Evidence submitted under NOA # 17-0802.10

A. DRAWINGS

1. Drawing No. **NU-1**, titled "Truss and Top Plate Anchors", sheets 1 through 4 of 4, dated 07/17/2017, prepared by Nu-Vue Industries, Inc., signed and sealed by Vipin N. Tolat, P.E.

B. TESTS

1. None.

C. CALCULATIONS

1. None.

D. QUALITY ASSURANCE

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

E. MATERIAL CERTIFICATIONS

1. None.

F. STATEMENTS

1. Statement letter of code conformance to the 5th Edition (2014) and 6th Edition (2017) FBC and of no financial interest, dated 07/25/2017, signed and sealed by Vipin N. Tolat, P.E.

Carlos M. Utrera, P.E.
Product Control Examiner
NOA No. 20-0901.05
Expiration Date: May 22, 2023
Approval Date: November 5, 2020

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

3. Evidence Submitted under NOA # 18-0312.06

A. DRAWINGS

1. Drawing No. **NU-1**, titled "Truss and Top Plate Anchors", sheets 1 through 4 of 4, dated 03/06/2018, prepared by Nu-Vue Industries, Inc., signed and sealed by Vipin N. Tolat, P.E.

B. TESTS

1. None.

C. CALCULATIONS

1. Adjustment factor calculations per ASTM D7147, prepared by Vipin N. Tolat, P.E., Consulting Engineer, dated 03/06/2018, signed and sealed by Vipin N. Tolat, P.E.

D. QUALITY ASSURANCE

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

E. MATERIAL CERTIFICATIONS

1. None.

F. STATEMENTS

1. Statement letter of code conformance to the 6th Edition (2017) FBC and of no financial interest, dated 03/10/2018, signed and sealed by Vipin N. Tolat, P.E.

Carlos M. Utrera, P.E.
Product Control Examiner
NOA No. 20-0901.05
Expiration Date: May 22, 2023
Approval Date: November 5, 2020

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

4. New Evidence Submitted

A. DRAWINGS

1. Drawing No. **NU-1**, titled "Truss and Top Plate Anchors", sheets 1 through 4 of 4, dated 08/18/2020, prepared by Nu-Vue Industries, Inc., signed and sealed by Vipin N. Tolat, P.E.

B. TESTS

1. None.

C. CALCULATIONS

1. None.

D. QUALITY ASSURANCE

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

E. MATERIAL CERTIFICATIONS

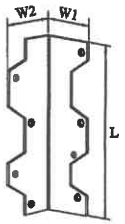
1. None.

F. STATEMENTS

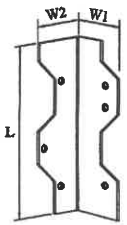
1. Statement letter of code conformance to the 6th Edition (2017) and 7th Edition (2020) FBC and of no financial interest, dated 08/18/2020, signed and sealed by Vipin N. Tolat, P.E.

Carlos M. Utrera, P.E.
Product Control Examiner
NOA No. 20-0901.05
Expiration Date: May 22, 2023
Approval Date: November 5, 2020

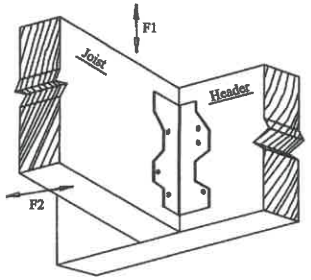
18 Gauge Angle Clips.



AB-7



AB-5



Typical Installation

Product Code	Dimensions (inches)			Fastener Schedule		Alowable Loads (lbs)	
	W1	W2	L	Header	Joist	F1	F2
AB5	1½	2 5/16	5	3-10dx1½"	3-10dx1½"	511	595
AB7	1½	2 5/16	7	4-10dx1½"	4-10dx1½"	582	794

Notes: Nail wider angle leg to Joist and Shorter leg to Header.

GENERAL NOTES:

1. Steel shall conform to ASTM A653, structural grade 33 (Min. yield 33 ksi) and a minimum galvanized coating of G 60 per ASTM A653.

2. Allowable loads are based on National Desing specifications (NDS) for wood construction, 2015/2018 and FBC 2017/2020.

3. Design loads are for Southern Pine species with a specific gravity of 0.55. Allowable loads for other species shall be adjusted accordingly.

4. Common wire nail values are based on NDS 2015/2018, G=0.55 and have been reduced for Penetration Depth factor P/10D.

5. Allowable loads for wind uplift have already been increased by a duration factor of 60% for anchor nail. Load values shown are without 33% steel stress increase.

6. Allowable loads for more than a single connection cannot be added together. A design load which is divided into components in the direction given must be evaluated as follows:

$$\frac{\text{Actual Uplift}}{\text{Allowable Uplift}} + \frac{\text{Actual L1}}{\text{Allowable L1}} + \frac{\text{Actual L2}}{\text{Allowable L2}} <= 1.0$$

7. Allowable loads are based on 1½" thick wood members unless otherwise noted.

8. All tie beams and grouted concrete masonry shall comply with FBC 2017/FBC 2020. Concrete for tie beams and grout and mortar for concrete masonry shall be a minimum of 2500 psi. Concrete masonry shall comply with ASTM C90.

9. All tests have been conducted in accordance with ASTM D-1761 and ASTM D-7147.

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 20-0901.05
Expiration Date 05/22/2023
By
Miami-Dade Product Control

VIPIN N. TOLAT, PE (CIVIL)
FL. REG. # 12847
15123 LANTERN CREEK LANE
HOUSTON, TX 77068

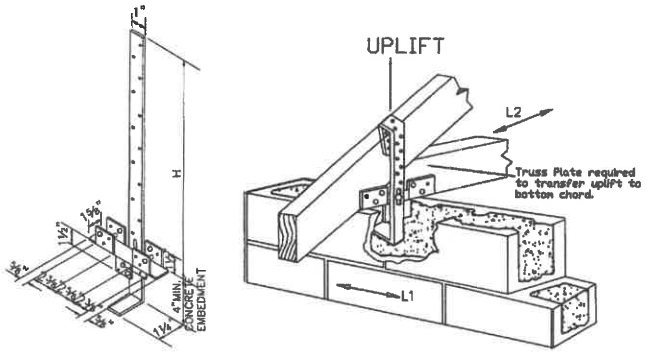
8/21/2020

Nu-Vue Industries, Inc.
1053-1059 East 29 Street
Hialeah, Florida 33013
(305) 694-0397
Fax: (305) 694-0398

TRUSS AND TOP PLATE ANCHORS

DWG #:	Sheet:	Date:	Revisions:
NU-1	1 of 4	August 18, 2020	

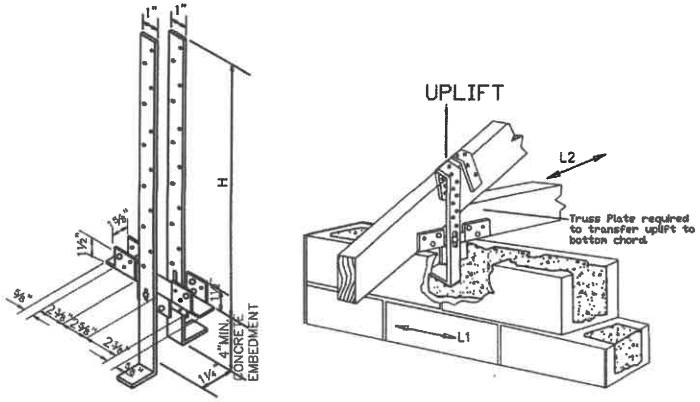
Deep Seat Truss Anchor. They are designed to resist lateral and uplift forces. The strap is made of 14 gauge steel and the seats of 20 gauge steel.



Assembly Product Code	Dimension H (inches)
NVSTA12	12
NVSTA16	16
NVSTA20	20
NVSTA22	22
NVSTA24	24

Total No. of Fasteners in Strap 10d x 1½"	Total No. of Fasteners in 20 GA. Seat 10d x 1½"	Allowable Loads (lbs)		
		Uplift [6]	L1 [6]	L2 [6]
5	6	1046	700	1049
6	6	1141	760	1144
7	6	1236	823	1239
8	6	1331	887	1335
9	6	1426	950	1430

Holden Double Strap Riveted Truss Anchor. They are designed of 14 gauge steel plates to resist lateral and uplift forces. The seats are made of 20 gauge steel.



Assembly Product Code	Dimension H (inches)
NVHTA12	12
NVHTA16	16
NVHTA20	20
NVHTA22	22
NVHTA24	24

Total No. of Fasteners in two Straps 10d x 1½"	Total No. of Fasteners in 20 GA. Seat 10d x 1½"	Allowable Loads (lbs)			
		Uplift [6]	Uplift [5]	L1 [6]	L2 [6]
10	6	1506	1766	1050	1450
12	6	1695	1987	1181	1631
14	6	1883	2208	1312	1812
16	6	2071	2429	1444	1994
18	6	2259	2649	1575	2175

Notes:
1. Nails are necessary in straps and seat to achieve, desing loads.
2. See note 6, sheet 1 for combined loading.
3. Nails through chords shall not force the truss plates.
4. For general notes, see sheet 1.
5. For higher uplift loads, concrete shall be 3000 psi.
6. Based on min. 2500 psi concrete.

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 20-0901.05
Expiration Date 05/22/2023
By
Miami-Dade Product Control

VIPIN N. TOLAT, PE (CIVIL)
FL. REG. # 12847
15123 LANTERN CREEK LANE
HOUSTON, TX 77068

8/21/2020

Nu-Vue Industries, Inc.
1053-1059 East 29 Street
Hialeah, Florida 33013
(305) 694-0397
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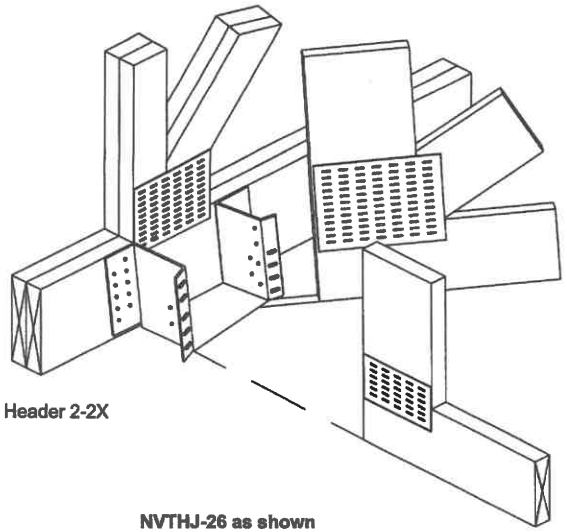
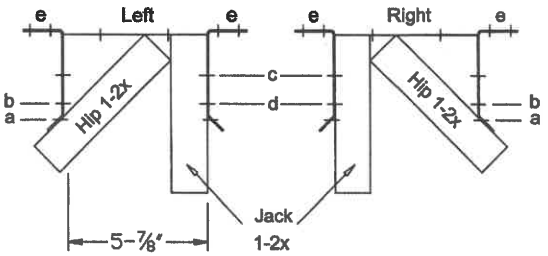
TRUSS AND TOP PLATE ANCHORS

DWG #:	Sheet:	Date:	Revisions:
NU-1	2 of 4	August 18, 2020	

12 Gauge NVTHJ Truss Hip & Jack Hanger



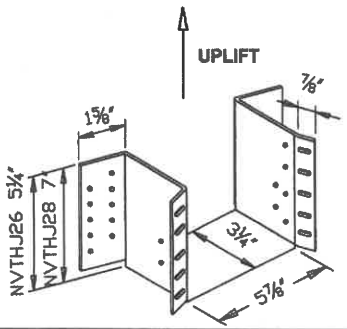


NVTHJ-26 as shown
NVTHJ-28 similar

U.S. Patent No. 4,964,253

Product Code	Allowable Loads (lbs) S. Pine	Nail Schedule						
	Uplift Loads	Header Nails 16d (e)	Hip Nail 10d			Jack Nail 10d		
			a	b	total	c	d	total
NVTHJ26	1478	16	4	3	7	2	3	5
NVTHJ28	1931	20	5	4	9	2	3	5

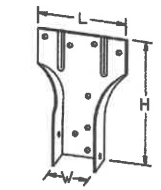
Note: For 1-2x members
10dx1½" nails can be used



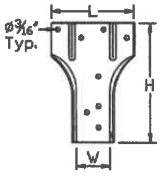
NVTHJ-28 as shown
NVTHJ-26 similar

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 20-0901.05
Expiration Date 05/22/2023
By
Miami-Dade Product Control

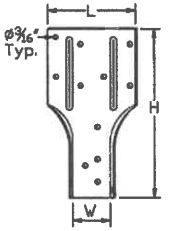
20G Stud Plate Ties



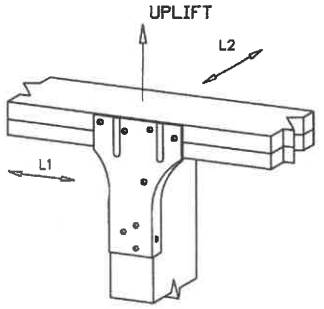
IKE-1
(ISOMETRIC)



IKE-1



IKE-2



TYPICAL IKE1
INSTALATION

Product Code	Dimensions (inches)			Fasteners		Allowable Loads (lbs)		
	W	H	L	Stud	Plate	Uplift	L1	L2
IKE 1	1½	5	3½	6-10d	4-10d	787	337	337
IKE 2	1½	6⅝	3½	6-10d	7-10d	932	451	318

VIPIN N. TOLAT, PE (CIVIL)
FL. REG. # 12847
15123 LANTERN CREEK LANE
HOUSTON, TX 77068

8/21/2020

Nu-Vue Industries, Inc.
1053-1059 East 29 Street
Hialeah, Florida 33013
(305) 694-0397
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TRUSS AND TOP PLATE ANCHORS

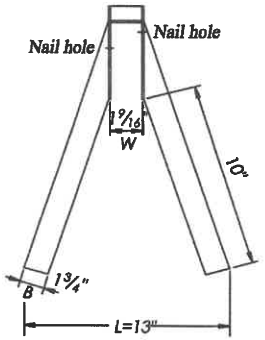
DWG #:	Sheet:	Date:	Revisions:
NU-1	3 of 4	August 18, 2020	

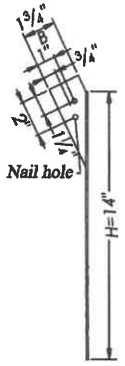
18 Gauge NVTT Sanibel Truss Strap

Product Code	Dimensions (inches)				Fasteners Schedule			Allowable Loads (lbs)	
	W	B	H	L	Truss	Top Plates	Hollow Concrete Masonry	Uplift	L1
NVTT-1	1 9/16	1¾	14	13	2-10dx1½"	6-10d	-----	968	543
NVTT-2	1 9/16	1¾	14	13	2-10dx1½"	-----	6-¼"Øx1 ½" Tapcons	1584	465

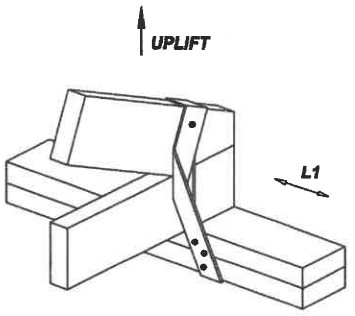
1. 1-10dx1½" nail is placed on each side of the Truss and 3-10dnails in each leg are placed in two top plates.

2. 3-¼"dia. x 1½" long, 1¼" embedment tapcons are placed in each leg and into the hollow concrete masonry. Maintain 2½" edge distance from top of the block and spacing of 3" between the tapcons.





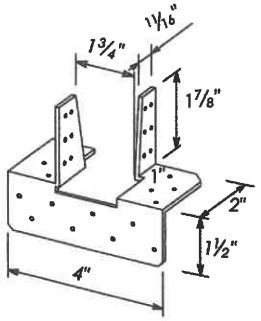
NVTT 1 and 2

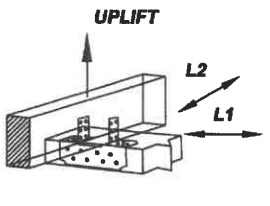


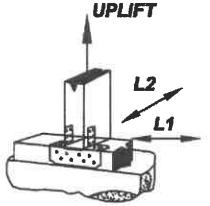
NVTT-1 As Shown
NVTT-2 Similar except concrete masonry with tapcon anchors instead of Wood Plates and nails.

18 Gauge NVHC 37 5WAY Grip Clip (520)

Product Code	Description	Nail Schedule		Allowable Design Loads (lbs)		
		Header or Plate	Joist or Stud	Uplift	L1	L2
NVHC 37	5 Way Clip	16-8d or 16-10d	12-8d or 12-10d	702	560	637







PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 20-0901.05
Expiration Date 05/22/2023
By
Miami-Dade Product Control

VIPIN N. TOLAT, PE (CIVIL)
FL. REG. # 12847
15123 LANTERN CREEK LANE
HOUSTON, TX 77068

8/21/2020

Nu-Vue Industries, Inc.
1053-1059 East 29 Street
Hialeah, Florida 33013
(305) 694-0397
Fax: (305) 694-0398

TRUSS AND TOP PLATE ANCHORS

DWG #:	Sheet:	Date:	Revisions:
NU-1	4 of 4	August 18, 2020	

Product Approval
USER: Public User

FL #	FL2033-R7
Application Type	Editorial Change
Code Version	2020
Application Status	Approved
Comments	
Archived	
Product Manufacturer	MiTek Inc.
Address/Phone/Email	16023 Swingley Ridge Road Chesterfield, MO 63017 (800) 328-5934 ewalden@mii.com
Authorized Signature	Erin Walden ewalden@mii.com
Technical Representative	Erin M. Walden
Address/Phone/Email	16023 Swingley Ridge Road Chesterfield, MO 63017 (952) 898-8635 ewalden@mii.com
Quality Assurance Representative	Erin M. Walden
Address/Phone/Email	16023 Swingley Ridge Road Chesterfield, MO 63017 (952) 898-8635 ewalden@mii.com
Category	Structural Components
Subcategory	Wood Connectors
Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer ☑ Evaluation Report - Hardcopy Received
Florida Engineer or Architect Name who developed the Evaluation Report	Steven Brekke
Florida License	PE-70432
Quality Assurance Entity	ICC NTA
Quality Assurance Contract Expiration Date	12/31/2023
Validated By	Johnathan Green, P.E. ☑ Validation Checklist - Hardcopy Received
Certificate of Independence	FL2033_R7_COI_Letter of Certification- MiTek, Inc._sealed.pdf

Referenced Standard and Year (of Standard)

Standard	Year
ANSI/AWC NDS	2018
ASTM D7147	2011

Equivalence of Product Standards Certified By: Florida Licensed Professional Engineer or Architect
FL2033_R7_Equiv_ASTM D1761 to D7147 Comparison 2020.pdf

Sections from the Code

Product Approval Method	Method 1 Option D
Date Submitted	12/14/2020
Date Validated	12/15/2020
Date Pending FBC Approval	12/26/2020
Date Approved	02/09/2021

Summary of Products

FL #	Model, Number or Name	Description
2033.1	UGTS3F, UGTS4F, UGTS43, UGTS44, UGTS53, UGTS54, UGTS63, UGTS64, UGTS73, UGTS74, UGTS83, UGTS84	Uplift Girder Tie
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** N/A **Design Pressure:** N/A **Other:**		**Installation Instructions** FL2033_R7_II_UGTS USC FBC 2020 Sealed.pdf Verified By: Steven Brekke 70432 Created by Independent Third Party: No **Evaluation Reports** FL2033_R7_AE_UGTS USC FBC 2020 Sealed.pdf Created by Independent Third Party: No
2033.2	USC3F, USC4F, USC43, USC44, USC53, USC54, USC63, USC64, USC73, USC74, USC83, USC84	Uplift Girder Tie
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** N/A **Design Pressure:** N/A **Other:**		**Installation Instructions** FL2033_R7_II_UGTS USC FBC 2020 Sealed.pdf Verified By: Steven Brekke 70432 Created by Independent Third Party: No **Evaluation Reports** FL2033_R7_AE_UGTS USC FBC 2020 Sealed.pdf Created by Independent Third Party: No

Back Next

Contact Us :: 2601 Blair Stone Road, Tallahassee FL 32399 Phone: 850-487-1824

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Product Approval Accepts:

Credit Card Safe securityMETRICS

MiTek®
Residential North America

Product Evaluation Report
MiTek® Inc.
UGTS & USC Uplift Girder Ties

Florida Product Approval # 2033.1-2 R6
Florida Building Code 2020
Per Rule 61G20-3.005(1)(d)
Method 1-d

Category: Structural Components
Subcategory: Wood Connector
Compliance Method: 61G20-3.005
HVHZ

Product Manufacturer:
MiTek Inc.
16023 Swingley Ridge Rd
Chesterfield, MO 63017

Engineer Evaluator:
Steven Brekke P.E.
FL P.E. #70432

Validator:
Johnathan Green, P.E.
FL P.E. #88223

Contents:
Evaluation Report Pages 1-4

MiTek Inc.
16023 Swingley Ridge Road
Chesterfield, MO 63017-5746
uspcustomerservice@mii.com
1-800-328-5934

MiTek®

Compliance Statement:	The product as described in this report has demonstrated compliance with the Florida Building Code 2020, Sections 2304.10.3 and 2314.
Product Description:	The UGTS & USC is an uplift girder truss tie and consists of a steel bucket welded to two straps to connect a wood member to a masonry wall. The connector is used to transfer uplift load between wood members and masonry walls.
Product Material:	Strap: 10 Ga. steel ASTM A1011-40 Seat: 10 Ga. steel ASTM A1011-40
Materials:	**Wood** Wood members must be Southern Pine with a minimum specific gravity (G) of 0.55, or an approved member with an equivalent specific gravity (G) of 0.55. Wood members shall have a moisture content not exceeding 19 percent (16 percent for structural engineered lumber). Wood members must be used under continuously dry conditions and where sustained temperatures are limited to 100° F. **Preservative and Fire-Retardant-treated Wood** Connectors or fasteners used in contact with preservative-treated and fire-retardant-treated wood shall be in accordance with Section 2304.10.5. **Nail** Nails shall meet the requirements in the Table and the requirements specified in ASTM F 1667. **Fasteners** Required fastener types and sizes are specified in the Table. **Masonry** Material and quality of masonry construction must comply with the applicable sections of FBC 2020.

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MiTek®

Design Procedure:	The allowable loads shown in the Table are based on allowable stress design and include a 60% increase for wind and seismic load conditions per Section 11.3.2 of the NDS. No further increases are permitted. The allowable loads are based on wood members with a moisture content not exceeding 19 percent (16 percent for structural engineered lumber). If moisture content exceeds this value, a wet service factor, C_m, must be applied per Section 11.3.3 of the NDS. The allowable loads are based on wood members under continuously dry conditions and where sustained temperatures are limited to 100° F. Wood members that will experience sustained exposure to temperatures exceeding 100°F shall be adjusted by the temperature factor, C_t, per Section 11.3.4 of the NDS. Wood members to which the anchor is attached must be designed by a registered design professional per FBC 2020. Fasteners shall be installed to fully grouted and reinforced masonry units (CMU) type S or better mortar, or reinforced concrete ($f'c$ = 2,500 psi at 28 days) designed by a registered design professional per FBC 2020.
Installation:	Install the anchor in accordance with this evaluation report and the manufacturer's installation instructions.
Testing and Specification:	1. ASTM D1761-88(00) Standard Test Methods for Mechanical Fasteners in Wood. Test Report No.3018 02-50883.3 dated 11/19/2002 by Twin City Testing Corporation Test Report No.031205 dated 11/30/2001 and revised 04/18/2002 by Twin City Testing Corporation 2. ASTM D 1761 to ASTM D7147-11 comparison letter, sealed by Steven Brekke, P.E. 3. ANSI/AWC National Design Specifications for Wood Construction (NDS) 2018
Quality Assurance Entity:	The manufacturer has established compliance of roof panel products in accordance with Florida Building Code and Rule 61G20-3.005 (3) for the manufacturing assurance program audited by an approved quality assurance entity.

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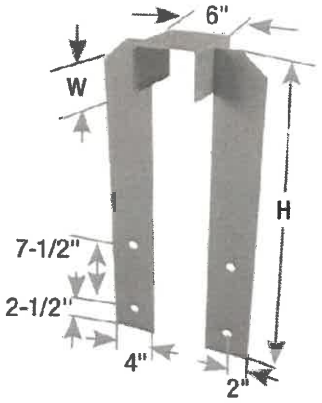
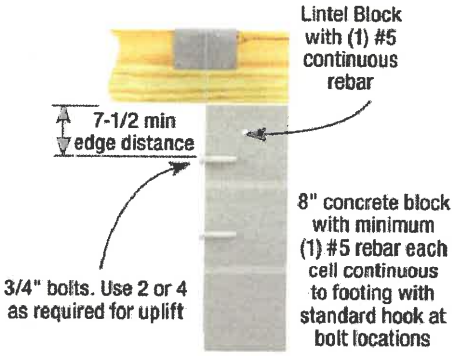
Description	USP Stock No.	Steel Gauge	Dimensions		Fastener Schedule[2,3,4]				Allowable Loads (Lbs.)
					Rafter/ Truss[5]		Concrete / Masonry Wall		DF-L / SP
									Uplift[1]
			W	H	Qty	Type	Qty	Bolt Dia.	160%
3 Ply Flat	UGTS3F	10	4-3/4	23	8	16d	2	3/4	7813
	USC3F	10	4-3/4	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
4 Ply Flat	UGTS4F	10	6-1/2	23	8	16d	2	3/4	7813
	USC4F	10	6-1/2	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
4/12 pitch	UGTS43	10	4-3/4	23	8	16d	2	3/4	7813
	UGTS44	10	6-1/2	23	8	16d	2	3/4	7813
	USC43	10	4-3/4	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
	USC44	10	6-1/2	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
5/12 pitch	UGTS53	10	4-3/4	23	8	16d	2	3/4	7813
	UGTS54	10	6-1/2	23	8	16d	2	3/4	7813
	USC53	10	4-3/4	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
	USC54	10	6-1/2	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
6/12 pitch	UGTS63	10	4-3/4	23	8	16d	2	3/4	7813
	UGTS64	10	6-1/2	23	8	16d	2	3/4	7813
	USC63	10	4-3/4	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
	USC64	10	6-1/2	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
7/12 pitch	UGTS73	10	4-3/4	23	8	16d	2	3/4	7813
	UGTS74	10	6-1/2	23	8	16d	2	3/4	7813
	USC73	10	4-3/4	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
	USC74	10	6-1/2	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
8/12 pitch	UGTS83	10	4-3/4	23	8	16d	2	3/4	7813
	UGTS84	10	6-1/2	23	8	16d	2	3/4	7813
	USC83	10	4-3/4	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133
	USC84	10	6-1/2	30-1/2	8	16d	2	3/4	7813
					8	16d	4	3/4	10133

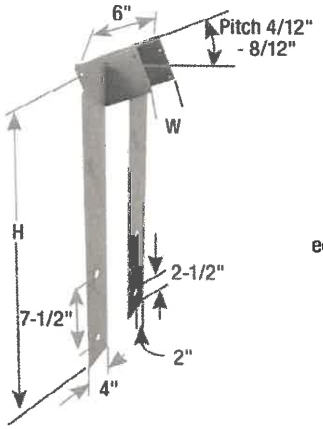
1) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
2) Use Powers Fasteners 3/4" - 6" Wedge Bolts; or equal, installed in accordance with manufacturer's specifications.
3) Fasteners shall be installed to fully grouted and reinforced concrete masonry or reinforced concrete (f'c = 2500 psi at 28 days).
4) Bolts shall conform to ASTM A 307 or better.
5) Minimum nail embedment shall be 1-5/8" for 16d nails.



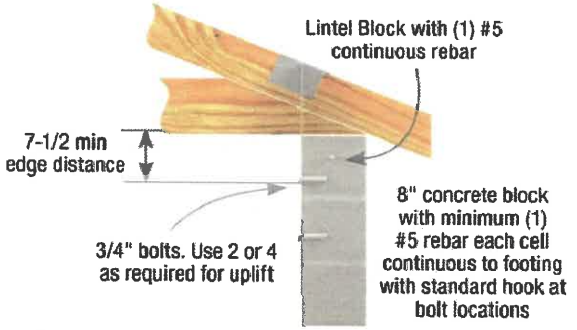
USC F Uplift Girder Tie (4-bolt design)



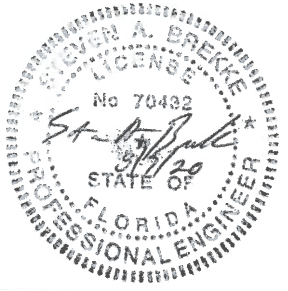
Typical USC F installation (UGTS F similar)



USC Uplift Girder Tie (4-bolt design)



Typical USC installation (UGTS similar)



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Name: UGTS & USC Uplift Girder Ties

Sheet 1	Steven Brekke PE
Date:	PROFESSIONAL ENGINEER
Aug 7, 2020	License #: 70432