Eastern
Engineering Group

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PINECREST EIGHT
Eastern Engineering Group

Job. No: 24-0609

Revision #2

13100 SW 80 AVE TERRACE, MIAMI,
FLORIDA

STRUCTURAL CALCULATION

RAISSA R. LOPEZ
LICENSE
No 59399
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Raissa R Lopez
Date: 2026.04.22 17:12:12-04'00'

Prepared By:
☐ Raissa Lopez, PE
Lic. No. 59399
CAN # 26655

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DESIGN CRITERIA:

Calculations based on:

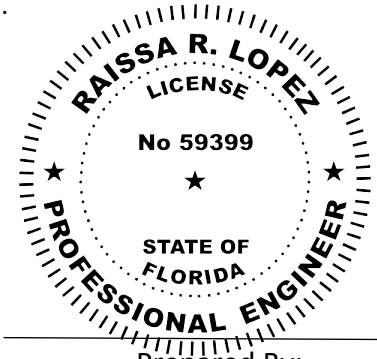
1. 2023 Florida Building Code
2. Minimum Design Loads for Buildings and Other Structures ASCE 7-22
3. Building Code Requirements for Structural Concrete ACI 318-19
4. American Institute of Steel Construction AISC-16ed
5. Aluminum Design Manual 2015
6. Specifications for the Design of Cold-Formed Stainless Steel Structural Members SEI/ASCE8-02

CALCULATION INDEX:

Total Pages = 59

CALCULATION STATEMENT:

To the best of my knowledge, ability, belief and professional judgment, I hereby attest that the manual calculations and computer-generated calculations are in compliance with the existing governing codes.



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WIND ANALYSIS

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Date: 2026.04.22 17:12:14-04'00'

Job. No.: **Date:**

MWFRS Pressures (including Parapet) & Base Shear for Enclosed, Partially Enclosed, & Partially Open Buildings of All Heights
ASCE 7-22 Chapter 27 - Directional Procedure - Part 1
(Flat, Gable, Hip, Monoslope or Mansard Roofs Only)

Note: Enter "B" parallel to Ridge.

Ridge

L (Y-Dim.)

B (X-Dim.)

$$q_z = 0.00256 K_z K_{zt} K_e V^2 (\text{lb/ft}^2);\ V, \text{mi/h}$$

$$p = q K_d G C_p - q_i K_d (G C_{pi})$$

Main Building (MWFRS) Inputs:			
Wind Speed	V	175	mph
Directionality Factor	Kd	0.85	
Topografic Factor	Kzt	1.00	
Exposure Category	-	C	
Ground Elev. (Above Sea Level)	ze	0.00	ft.
Ground Elevation Factor	Ke	1.00	
Gust Factor	G	0.85	
Internal Pressure Coeff.	+/- GCpi	0.18	
Building Width	B	113.00	ft.
Building Length	L	67.00	ft.
Mean Roof Height	h	28.50	ft.
Roof Angle	θ	0.00	deg.
		2.00	

MWRFS Wall Pressures:		LRFD:	ASD:	
Windward Pressure (+) at Z=h	Min.	32.38	19.43	psf
	Max.	55.69	33.41	psf
Windward Pressure (+) at Z=15'	Min.	26.86	16.12	psf
	Max.	50.17	30.10	psf
Leeward Y-Dir. Pressure (-)	Min.	-15.86	-9.52	psf
	Max.	-39.18	-23.51	psf
Leeward X-Dir. Pressure (-)	Min.	-8.31	-4.98	psf
	Max.	-31.62	-18.97	psf
Sidewall Pressure (-)	Min.	-26.87	-16.12	psf
	Max.	-50.18	-30.11	psf

Exposure:	B	C	D
Kh	0.690	0.972	1.152
qz-15' (psf)	44.69	66.64	80.75
qh (psf)	54.13	76.18	90.31
pW-15' (psf) (+GCpi)	17.55	26.86	32.86
pW-15' (psf) (-GCpi)	34.11	50.17	60.49
pW-h (psf) (+GCpi)	23.00	32.38	38.38
pW-h (psf) (-GCpi)	39.57	55.69	66.02
pL-X (psf) (+GCpi)	-22.47	-31.62	-37.48
pL-X (psf) (-GCpi)	-5.90	-8.31	-9.85
pL-Y (psf) (+GCpi)	-27.83	-39.18	-46.44
pL-Y (psf) (-GCpi)	-11.27	-15.86	-18.81
Sidewall (psf) (+GCpi)	-35.66	-50.18	-59.49
Sidewall (psf) (-GCpi)	-19.09	-26.87	-31.86
Wind Direction:	**X-Dir.**	**Y-Dir.**	
L/B Ratio:	1.69	0.59	
Windward Wall Cp:	0.80	0.80	
Leeward Wall Cp:	-0.36	-0.50	
Sidewall Cp:	-0.70	-0.70	

Building Base Shear:		
Porosity Ratio (A_o/A_g) - X-Dir.	0.00	
Porosity Ratio (A_o/A_g) - Y-Dir.	0.00	
Solidity Ratio - X-Direction	1.00	
Solidity Ratio - Y-Ditection	1.00	
No. of Windward Facades - X-Dir.	1.00	
No. of Leeward Facades - X-Dir.	1.00	
No. of Windward Facades - Y-Dir.	1.00	
No. of Leeward Facades - Y-Dir.	1.00	
X-Dir. Max. Windward Shear:	98.3	k
X-Dir. Min. Leeward Shear:	15.9	k
X-Dir. Min. Windward Shear:	53.8	k
X-Dir. Max. Leeward Shear:	60.4	k
Y-Dir. Max. Windward Shear:	165.8	k
Y-Dir. Min. Leeward Shear:	51.1	k
Y-Dir. Min. Windward Shear:	90.7	k
Y-Dir. Max. Leeward Shear:	126.2	k
Total Bldg. X-Dir. Base Shear (LRFD)	114.2	k
Total Bldg. Y-Dir. Base Shear (LRFD)	216.9	k

Parapet MWFRS Pressures & Base Shear:			
Parapet Hght. above Roof	-	1.50	ft.
Top of Parapet Height		30.00	ft.
Windward Factor		1.50	
Leeward Factor		-1.0	
Comb. Net Coefficient	GCpn	2.50	
Windward Pressure		98.19	psf
Leeward Pressure		65.46	psf
Total Parapet Pressure		163.64	psf
Parapet MWFRS Equiv. Px		163.64	psf
Parapet MWRFS Equiv. Py		163.64	psf
X-Dir. Windward Parapet Shear:		9.9	k
X-Dir. Leeward Parapet Shear:		6.6	k
Y-Dir. Windward Parapet Shear:		16.8	k
Y-Dir. Leeward Parapet Shear:		11.1	k
Parapet X-Dir. Base Shear (LRFD)		16.4	k
Parapet Y-Dir. Base Shear (LRFD)		27.7	k

Total MWFRS Bldg. + MWFRS Parapet Shears:		
X-Dir. Base Shear (LRFD)	**130.6**	k
Y-Dir. Base Shear (LRFD)	**244.6**	k

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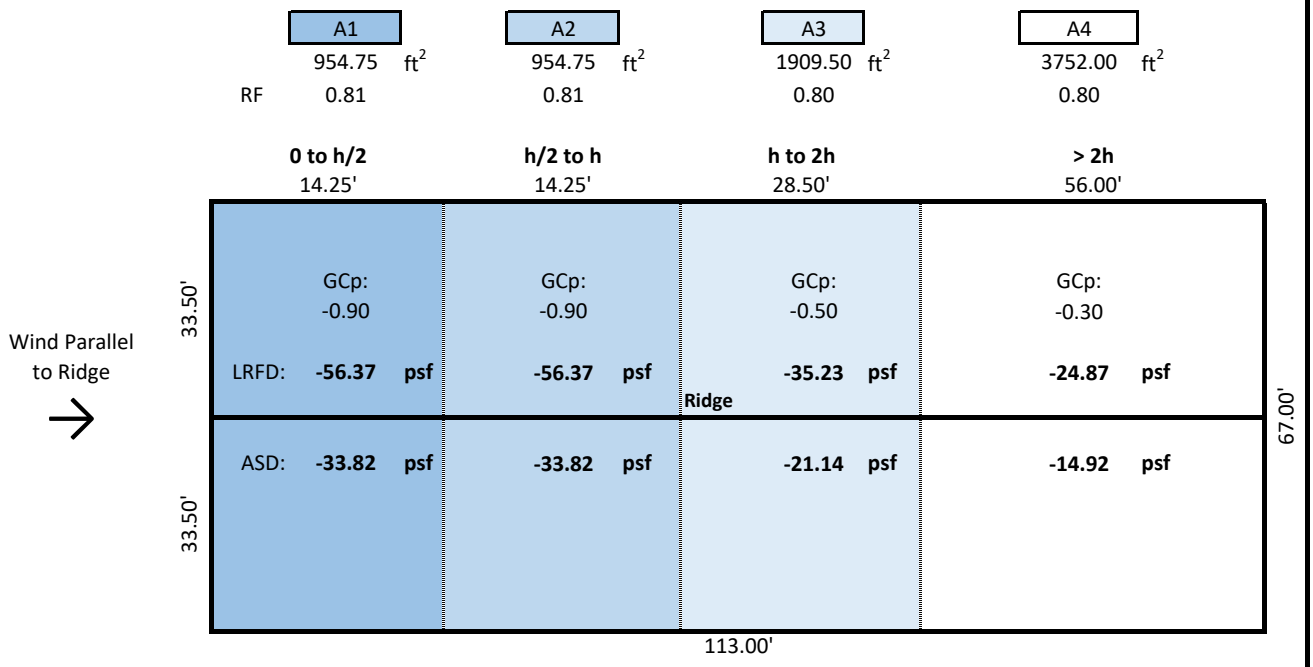
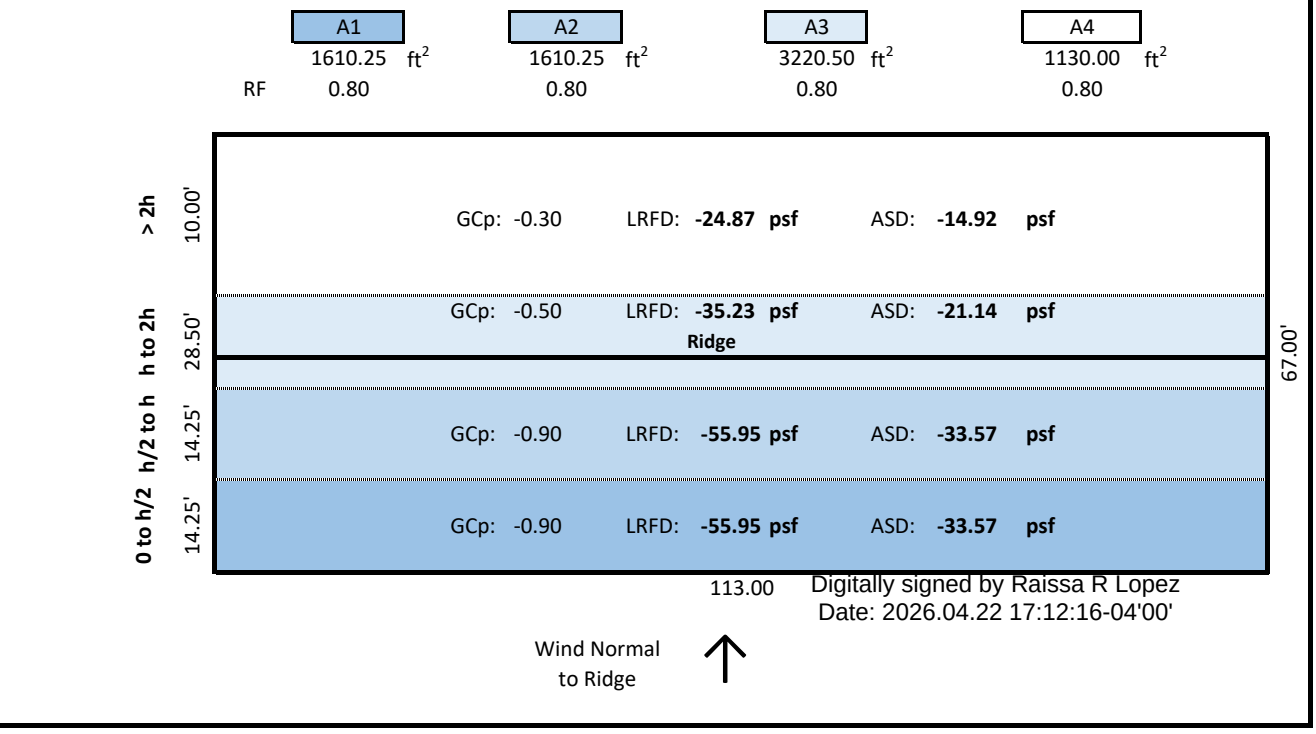
MWFRS Roof Pressures:





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Date: 2026.04.22 17:12:16-04'00'

Job. No.: **Date:**

Component and Cladding Wind Pressures for Enclosed, Partially Enclosed, & Partially Open Buildings with h ≤ 60 ft.
ASCE 7-22 Chapter 30 - Directional Procedure - Part 1
(Flat Roof with θ ≤ 7°, Gable/Hip Roof with 0° < θ ≤ 45°, Monoslope Roof 0° < θ ≤ 30° Only)

Component & Cladding Inputs:			
Wind Speed	V	175	mph
Directionality Factor	Kd	0.85	
Topografic Factor	Kzt	1.00	
Exposure Category	-	C	
Int. Press. Coeff.	+/- GCpi	0.18	
Building Width	B	113.00	ft.
Building Length	L	67.00	ft.
Mean Roof Height	h	28.50	ft.
Roof Type	-	FLAT	
Roof Angle	θ	0.0	deg.
Parapet@Per. ≥ 3 ft. ?	-	YES	ft.

$$q_z = 0.00256 K_z K_{zt} K_e V^2 (\text{lb/ft}^2);\ V, \text{mi/h}$$

$$p = q_h K_d [(GC_p) - (GC_{pi})] (\text{lb/ft}^2)$$

Exposure:	B	C	D
Kh:	0.690	0.972	1.152
qh (psf):	54.13	76.18	90.31

qh =	76.18	psf

0.1(B,L)	6.70	ft
0.4h	11.40	ft
0.8h	22.80	ft
0.04(B,L)	2.68	ft
3'	3.00	ft
a =	**6.70**	ft.

Wall Zones:

Zone:	A_e (ft²):	Fig. 30.3-1 GCp:	LRFD: (psf)	ASD: (psf)
4	10.0	0.90	**69.93**	**41.96**
		-0.99	**-75.76**	**-45.46**
5	10.0	0.90	**69.93**	**41.96**
		-1.26	**-93.25**	**-55.95**
4	20.0	0.85	**66.84**	**40.10**
		-0.94	**-72.66**	**-43.60**
5	20.0	0.85	**66.84**	**40.10**
		-1.16	**-87.05**	**-52.23**
4	50.0	0.79	**62.74**	**37.64**
		-0.88	**-68.57**	**-41.14**
5	50.0	0.79	**62.74**	**37.64**
		-1.04	**-78.86**	**-47.32**
4	100.0	0.74	**59.64**	**35.79**
		-0.83	**-65.47**	**-39.28**
5	100.0	0.74	**59.64**	**35.79**
		-0.94	**-72.66**	**-43.60**

Roof Zones:

Zone:	Ae (ft2):	Fig. 30.3-2A GCp:	LRFD: (psf)	ASD: (psf)
1'	10.0	-0.90	**-69.93**	**-41.96**
1	10.0	-1.70	**-121.74**	**-73.04**
2	10.0	-2.30	**-160.59**	**-96.35**
3	10.0	-2.30	**-160.59**	**-96.35**
1'	20.0	-0.90	**-69.93**	**-41.96**
1	20.0	-1.58	**-113.71**	**-68.22**
2	20.0	-2.14	**-150.27**	**-90.16**
3	20.0	-2.14	**-150.27**	**-90.16**
1'	50.0	-0.90	**-69.93**	**-41.96**
1	50.0	-1.41	**-103.09**	**-61.85**
2	50.0	-1.93	**-136.62**	**-81.97**
3	50.0	-1.93	**-136.62**	**-81.97**
1'	100.0	-0.90	**-69.93**	**-41.96**
1	100.0	-1.29	**-95.06**	**-57.04**
2	100.0	-1.77	**-126.29**	**-75.77**
3	100.0	-1.77	**-126.29**	**-75.77**

Roof Zones (Overhang):

Zone:	Ae (ft2):	Fig. 30.3-2A GCp:	LRFD: (psf)	ASD: (psf)
1'H	10.0	-1.70	**-121.74**	**-73.04**
1H	10.0	-1.70	**-121.74**	**-73.04**
2H	10.0	-2.30	**-160.59**	**-96.35**
3H	10.0	-3.20	**-218.87**	**-131.32**
1'H	20.0	-1.67	**-119.79**	**-71.87**
1H	20.0	-1.67	**-119.79**	**-71.87**
2H	20.0	-2.09	**-146.82**	**-88.09**
3H	20.0	-2.83	**-194.78**	**-116.87**
1'H	50.0	-1.63	**-117.21**	**-70.33**
1H	50.0	-1.63	**-117.21**	**-70.33**
2H	50.0	-1.81	**-128.62**	**-77.17**
3H	50.0	-2.34	**-162.93**	**-97.76**
1'H	100.0	-1.60	**-115.26**	**-69.16**
1H	100.0	-1.60	**-115.26**	**-69.16**
2H	100.0	-1.59	**-114.85**	**-68.91**
3H	100.0	-1.96	**-138.83**	**-83.30**

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ETABS REPORT

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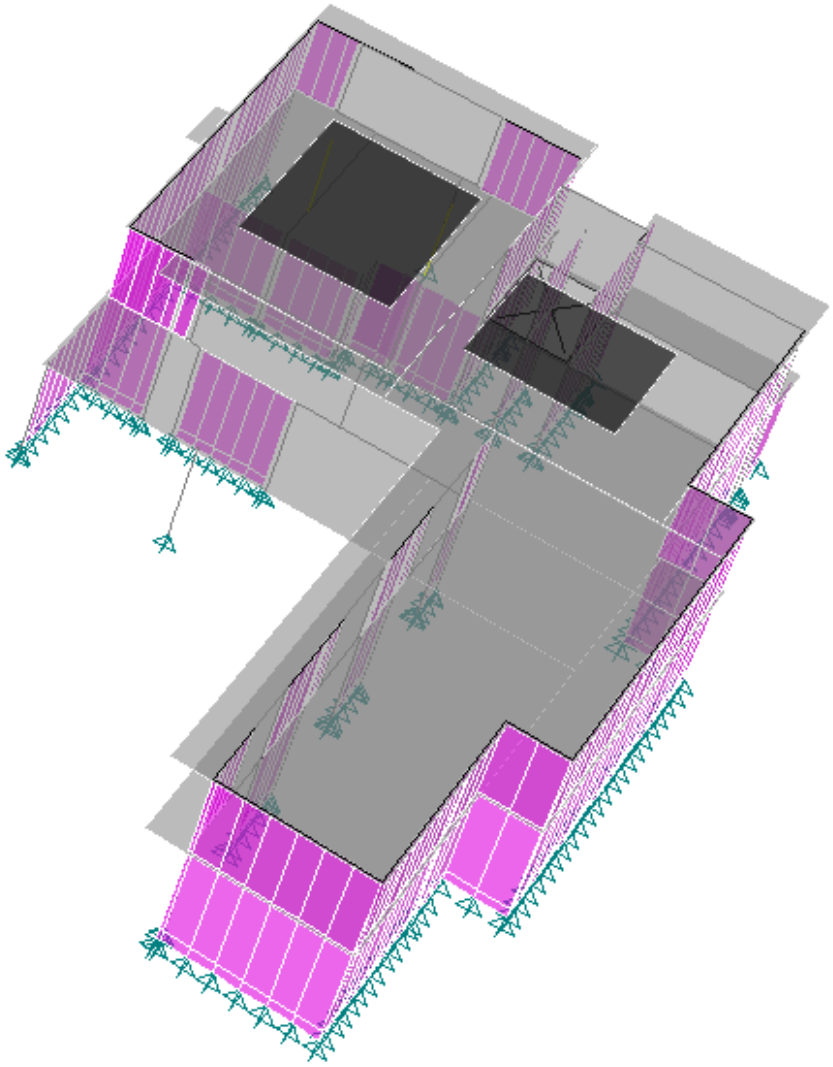


24-0609 Pinecrest 8 Rev 2#

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	Roof	4	No	None	No	Green
T1	Roof Beams	10.17	No	None	No	Cyan
T1	2nd Floor	4	No	None	No	Cyan
T1	Second Beams	9.83	No	None	No	Red
T1	1st Floor	0.5	No	None	No	Red

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	30	Gray6

Table 1.3 - Grid Definitions - Grid Lines

Name	Grid Line Type	ID	X1 ft	Y1 ft	X2 ft	Y2 ft	Bubble Location	Visible
G1	General (Cartesian)	A	182.6218	103.7467	60.4194	103.7467	End	Yes
G1	General (Cartesian)	1	64.7627	35	64.7627	110.245	End	Yes
G1	General (Cartesian)	4	129.3592	35	129.3592	110.245	End	Yes
G1	General (Cartesian)	G	182.6218	44.5053	60.4176	44.5053	End	Yes
G1	General (Cartesian)	5	136.3356	35	136.3356	110.245	End	Yes
G1	General (Cartesian)	B	182.6148	86.1605	60.4124	86.1756	End	Yes
G1	General (Cartesian)	2	92.6585	35	92.6585	110.245	End	Yes
G1	General (Cartesian)	3	115.4432	35	115.4432	110.245	End	Yes
G1	General (Cartesian)	1'	66.721	35	66.721	110.245	End	Yes
G1	General (Cartesian)	C	182.6218	84.9905	60.7354	84.9905	End	Yes
G1	General (Cartesian)	A'	182.6218	93.9134	61.0062	93.9134	End	Yes
G1	General (Cartesian)	E	182.6218	62.932	61.21	62.932	End	Yes
G1	General (Cartesian)	6'	155.5985	35	155.5985	108.8348	End	Yes
G1	General (Cartesian)	1"	80.051	35	80.051	110.245	End	Yes
G1	General (Cartesian)	1"'	90.6968	35	90.6968	110.245	End	Yes
G1	General (Cartesian)	2'	104.0439	35	104.0439	110.245	End	Yes
G1	General (Cartesian)	2"	111.273	35	111.273	110.245	End	Yes
G1	General (Cartesian)	3'	124.596	35	124.596	110.245	End	Yes
G1	General (Cartesian)	H	182.6218	37.6824	60.4176	37.6824	End	Yes
G1	General (Cartesian)	F	182.6218	62.0885	60.4176	62.0885	End	Yes
G1	General (Cartesian)	7	155.7652	35	155.7652	110.245	End	Yes
G1	General (Cartesian)	7'	157.5074	35	157.5074	110.245	End	Yes
G1	General (Cartesian)	9	174.618	35	174.618	110.245	End	Yes
G1	General (Cartesian)	8	166.6909	35	166.6909	110.245	End	Yes
G1	General (Cartesian)	D	182.6218	72.604	60.7354	72.604	End	Yes
G1	General (Cartesian)	D'	182.6218	67.7687	60.7354	67.7687	End	Yes

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	Gray8Dark	
A416Gr270	Tendon	Uniaxial	Unknown	Green	
A615Gr60	Rebar	Uniaxial	Unknown	Blue	
A992Fy50	Steel	Isotropic	Unknown	Yellow	
M1500Psi	Masonry	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	I23 in4	As2 in2	As3 in2
B-12x12 (4)	4000Psi	Concrete Rectangular	Cyan	144	2920.32	1728	1728	0	120	120
B-12x20 (4)	4000Psi	Concrete Rectangular	Magenta	240	7223.67	8000	2880	0	200	200
B-8x24 (4)	4000Psi	Concrete Rectangular	Green	192	3236.72	9216	1024	0	160	160
B-8x26 (4)	4000Psi	Concrete Rectangular	Yellow	208	3582.29	11717.33	1109.33	0	173.33	173.33
B-8x30 (4)	4000Psi	Concrete Rectangular	Cyan	240	4260.2	18000	1280	0	200	200
B-8x32 (4)	4000Psi	Concrete Rectangular	Gray8Dark	256	4608.18	21845.33	1365.33	0	213.33	213.33
B-8x40 (4)	4000Psi	Concrete Rectangular	Cyan	320	5975.21	42666.67	1706.67	0	266.67	266.67
B-8x46 (4)	4000Psi	Concrete Rectangular	Cyan	368	6999.94	64890.67	1962.67	0	306.67	306.67
B-8x48 (4)	4000Psi	Concrete Rectangular	Magenta	384	7341.5	73728	2048	0	320	320
B-8x50 (4)	4000Psi	Concrete Rectangular	Magenta	400	7684.25	83333.33	2133.33	0	333.33	333.33
C-15x15 (4)	4000Psi	Concrete Rectangular	Magenta	256	9229.65	5461.33	5461.33	0	213.33	213.33
C-16x16 (4)	4000Psi	Concrete Rectangular	Cyan	256	9229.65	5461.33	5461.33	0	213.33	213.33
C-8x12 (4)	4000Psi	Concrete Rectangular	Magenta	96	1202	512	1152	0	80	80
C-8x16 (4)	4000Psi	Concrete Rectangular	Magenta	128	1874.99	682.67	2730.67	0	106.67	106.67
C-8x20 (4)	4000Psi	Concrete Rectangular	Blue	160	2557.9	853.33	5333.33	0	133.33	133.33
C-8x24 (4)	4000Psi	Concrete Rectangular	Gray8Dark	192	3236.72	1024	9216	0	160	160
C-8x26 (4)	4000Psi	Concrete Rectangular	Blue	208	3582.29	1109.33	11717.33	0	173.33	173.33
C-8x34 (4)	4000Psi	Concrete Rectangular	Magenta	272	4949.6	1450.67	26202.67	0	226.67	226.67
HSS6X4X1/4	A992Fy50	Steel Tube	Cyan	4.3	23.6	20.9	11.1	0	2.8	1.86

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	PNA Offset 2 in
B-12x12 (4)	288	288	288	288	432	432	3.4641	3.4641	0	0	0	0
B-12x20 (4)	800	800	480	480	1200	720	5.7735	3.4641	0	0	0	0
B-8x24 (4)	768	768	256	256	1152	384	6.9282	2.3094	0	0	0	0
B-8x26 (4)	901.33	901.33	277.33	277.33	1352	416	7.5056	2.3094	0	0	0	0
B-8x30 (4)	1200	1200	320	320	1800	480	8.6603	2.3094	0	0	0	0
B-8x32 (4)	1365.33	1365.33	341.33	341.33	2048	512	9.2376	2.3094	0	0	0	0
B-8x40 (4)	2133.33	2133.33	426.67	426.67	3200	640	11.547	2.3094	0	0	0	0
B-8x46 (4)	2821.33	2821.33	490.67	490.67	4232	736	13.2791	2.3094	0	0	0	0
B-8x48 (4)	3072	3072	512	512	4608	768	13.8564	2.3094	0	0	0	0
B-8x50 (4)	3333.33	3333.33	533.33	533.33	5000	800	14.4338	2.3094	0	0	0	0
C-15x15 (4)	682.67	682.67	682.67	682.67	1024	1024	4.6188	4.6188	0	0	0	0
C-16x16 (4)	682.67	682.67	682.67	682.67	1024	1024	4.6188	4.6188	0	0	0	0
C-8x12 (4)	128	128	192	192	192	288	2.3094	3.4641	0	0	0	0

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	PNA Offset 2 in
C-8x16 (4)	170.67	170.67	341.33	341.33	256	512	2.3094	4.6188	0	0	0	0
C-8x20 (4)	213.33	213.33	533.33	533.33	320	800	2.3094	5.7735	0	0	0	0
C-8x24 (4)	256	256	768	768	384	1152	2.3094	6.9282	0	0	0	0
C-8x26 (4)	277.33	277.33	901.33	901.33	416	1352	2.3094	7.5056	0	0	0	0
C-8x34 (4)	362.67	362.67	1541.33	1541.33	544	2312	2.3094	9.815	0	0	0	0
HSS6X4X1/4	6.97	6.97	5.55	5.55	8.53	6.45	2.2046	1.6067	0	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
B-12x12 (4)	1	1	1	1	1	1	1	1
B-12x20 (4)	1	1	1	1	1	1	1	1
B-8x24 (4)	1	1	1	1	1	1	1	1
B-8x26 (4)	1	1	1	1	1	1	1	1
B-8x30 (4)	1	1	1	1	1	1	1	1
B-8x32 (4)	1	1	1	1	1	1	1	1
B-8x40 (4)	1	1	1	1	1	1	1	1
B-8x46 (4)	1	1	1	1	1	1	1	1
B-8x48 (4)	1	1	1	1	1	1	1	1
B-8x50 (4)	1	1	1	1	1	1	1	1
C-15x15 (4)	1	1	1	1	1	1	1	1
C-16x16 (4)	1	1	1	1	1	1	1	1
C-8x12 (4)	1	1	1	1	1	1	1	1
C-8x16 (4)	1	1	1	1	1	1	1	1
C-8x20 (4)	1	1	1	1	1	1	1	1
C-8x24 (4)	1	1	1	1	1	1	1	1
C-8x26 (4)	1	1	1	1	1	1	1	1
C-8x34 (4)	1	1	1	1	1	1	1	1
HSS6X4X1/4	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	Deck Material	Deck Depth in
MW 8 (1.5)	Wall	Shell-Thin	M1500Psi	8		
Slab 10 (4)	Slab	Shell-Thin	4000Psi	10		
Slab 7 (4)	Slab	Shell-Thin	4000Psi	7		
Slab 8 (4)	Slab	Shell-Thin	4000Psi	8		
Slab 9 (4)	Slab	Shell-Thin	4000Psi	9		
SW 8 (4)	Wall	Shell-Thin	4000Psi	8		

3 Loads

This chapter provides loading information as applied to the model.

3.1 Load Patterns

Table 3.1 - Load Pattern Definitions

Name	Is Auto Load	Type	Self Weight Multiplier	Auto Load
~LLRF	Yes	Other	0	
Dead	No	Dead	1	
Flood	No	Other	0	
Live	No	Live	0	
Reducible Live	No	Reducible Live	0	
Roof Live	No	Roof Live	0	
Super Dead	No	Super Dead	0	
Wind	No	Wind	0	ASCE 7-22
Wind(1/12)	Yes	Wind	0	ASCE 7-22
Wind(10/12)	Yes	Wind	0	ASCE 7-22
Wind(11/12)	Yes	Wind	0	ASCE 7-22
Wind(12/12)	Yes	Wind	0	ASCE 7-22
Wind(2/12)	Yes	Wind	0	ASCE 7-22
Wind(3/12)	Yes	Wind	0	ASCE 7-22
Wind(4/12)	Yes	Wind	0	ASCE 7-22
Wind(5/12)	Yes	Wind	0	ASCE 7-22
Wind(6/12)	Yes	Wind	0	ASCE 7-22
Wind(7/12)	Yes	Wind	0	ASCE 7-22
Wind(8/12)	Yes	Wind	0	ASCE 7-22
Wind(9/12)	Yes	Wind	0	ASCE 7-22

3.2 Auto Wind Loading

Table 3.2 - Load Pattern Definitions - Auto Wind - ASCE 7-22 (Part 1 of 3)

Name	Is Auto Load	Exposure Source	Top Story	Bottom Story	Include Parapet	Parapet Height ft	User Cp?	ASCE Case	e1 Ratio	e2 Ratio	Wind Speed mph
Wind	No	Diaphragms	Roof	1st Floor	Yes	8	No	Create All	0.15	0.15	175
Wind	No										
Wind	No										
Wind(1/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	1x	0	0	175
Wind(1/12)	Yes										
Wind(1/12)	Yes										
Wind(10/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	4x(-e1, -e2)	-0.15	-0.15	175
Wind(10/12)	Yes										
Wind(10/12)	Yes										
Wind(11/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	4y(+e1, +e2)	0.15	0.15	175
Wind(11/12)	Yes										
Wind(11/12)	Yes										
Wind(12/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	4y(-e1, -e2)	-0.15	-0.15	175
Wind(12/12)	Yes										
Wind(12/12)	Yes										
Wind(2/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	1y	0	0	175
Wind(2/12)	Yes										
Wind(2/12)	Yes										
Wind(3/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	2x(+e1)	0.15	0	175
Wind(3/12)	Yes										

Name	Is Auto Load	Exposure Source	Top Story	Bottom Story	Include Parapet	Parapet Height ft	User Cp?	ASCE Case	e1 Ratio	e2 Ratio	Wind Speed mph
Wind(3/12)	Yes										
Wind(4/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	2x(-e1)	-0.15	0	175
Wind(4/12)	Yes										
Wind(4/12)	Yes										
Wind(5/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	2y(+e1)	0.15	0	175
Wind(5/12)	Yes										
Wind(5/12)	Yes										
Wind(6/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	2y(-e1)	-0.15	0	175
Wind(6/12)	Yes										
Wind(6/12)	Yes										
Wind(7/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	3x	0	0	175
Wind(7/12)	Yes										
Wind(7/12)	Yes										
Wind(8/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	3y	0	0	175
Wind(8/12)	Yes										
Wind(8/12)	Yes										
Wind(9/12)	Yes	Diaphragms	Roof	1st Floor	Yes	8	No	4x(+e1, +e2)	0.15	0.15	175
Wind(9/12)	Yes										
Wind(9/12)	Yes										

Table 3.2 - Load Pattern Definitions - Auto Wind - ASCE 7-22 (Part 2 of 3)

Name	Exposure Type	Ground Elev Factor	kzt	Gust Factor	Kd	Width Type	Direction Angle deg	Story	Diaphragm	Width ft
Wind	C	1	1	0.85	0.85	Auto	0	Roof	D1	68.4134
Wind								2nd Floor	D1	66.7308
Wind								1st Floor	D1	0
Wind(1/12)	C	1	1	0.85	0.85	Auto	0	Roof	D1	68.4134
Wind(1/12)								2nd Floor	D1	66.7308
Wind(1/12)								1st Floor	D1	0
Wind(10/12)	C	1	1	0.85	0.85	Auto	0	Roof	D1	68.4134
Wind(10/12)								2nd Floor	D1	66.7308
Wind(10/12)								1st Floor	D1	0
Wind(11/12)	C	1	1	0.85	0.85	Auto	90	Roof	D1	112.5312
Wind(11/12)								2nd Floor	D1	110.5186
Wind(11/12)								1st Floor	D1	0
Wind(12/12)	C	1	1	0.85	0.85	Auto	90	Roof	D1	112.5312
Wind(12/12)								2nd Floor	D1	110.5186
Wind(12/12)								1st Floor	D1	0
Wind(2/12)	C	1	1	0.85	0.85	Auto	90	Roof	D1	112.5312
Wind(2/12)								2nd Floor	D1	110.5186
Wind(2/12)								1st Floor	D1	0
Wind(3/12)	C	1	1	0.85	0.85	Auto	0	Roof	D1	68.4134
Wind(3/12)								2nd Floor	D1	66.7308
Wind(3/12)								1st Floor	D1	0
Wind(4/12)	C	1	1	0.85	0.85	Auto	0	Roof	D1	68.4134
Wind(4/12)								2nd Floor	D1	66.7308
Wind(4/12)								1st Floor	D1	0
Wind(5/12)	C	1	1	0.85	0.85	Auto	90	Roof	D1	112.5312
Wind(5/12)								2nd Floor	D1	110.5186
Wind(5/12)								1st Floor	D1	0
Wind(6/12)	C	1	1	0.85	0.85	Auto	90	Roof	D1	112.5312
Wind(6/12)								2nd Floor	D1	110.5186
Wind(6/12)								1st Floor	D1	0

Name	Exposure Type	Ground Elev Factor	kzt	Gust Factor	Kd	Width Type	Direction Angle deg	Story	Diaphragm	Width ft
Wind(7/12)	C	1	1	0.85	0.85	Auto	0	Roof	D1	68.4134
Wind(7/12)								2nd Floor	D1	66.7308
Wind(7/12)								1st Floor	D1	0
Wind(8/12)	C	1	1	0.85	0.85	Auto	90	Roof	D1	112.5312
Wind(8/12)								2nd Floor	D1	110.5186
Wind(8/12)								1st Floor	D1	0
Wind(9/12)	C	1	1	0.85	0.85	Auto	0	Roof	D1	68.4134
Wind(9/12)								2nd Floor	D1	66.7308
Wind(9/12)								1st Floor	D1	0

Table 3.2 - Load Pattern Definitions - Auto Wind - ASCE 7-22 (Part 3 of 3)

Name	Depth ft	X ft	Y ft
Wind	112.5312	120.6858	71.54
Wind	110.5186	119.692	70.7178
Wind	0	119.6903	70.7172
Wind(1/12)	112.5312	120.6858	71.54
Wind(1/12)	110.5186	119.692	70.7178
Wind(1/12)	0	119.6903	70.7172
Wind(10/12)	112.5312	120.6858	71.54
Wind(10/12)	110.5186	119.692	70.7178
Wind(10/12)	0	119.6903	70.7172
Wind(11/12)	68.4134	120.6858	71.54
Wind(11/12)	66.7308	119.692	70.7178
Wind(11/12)	0	119.6903	70.7172
Wind(12/12)	68.4134	120.6858	71.54
Wind(12/12)	66.7308	119.692	70.7178
Wind(12/12)	0	119.6903	70.7172
Wind(2/12)	68.4134	120.6858	71.54
Wind(2/12)	66.7308	119.692	70.7178
Wind(2/12)	0	119.6903	70.7172
Wind(3/12)	112.5312	120.6858	71.54
Wind(3/12)	110.5186	119.692	70.7178
Wind(3/12)	0	119.6903	70.7172
Wind(4/12)	112.5312	120.6858	71.54
Wind(4/12)	110.5186	119.692	70.7178
Wind(4/12)	0	119.6903	70.7172
Wind(5/12)	68.4134	120.6858	71.54
Wind(5/12)	66.7308	119.692	70.7178
Wind(5/12)	0	119.6903	70.7172
Wind(6/12)	68.4134	120.6858	71.54
Wind(6/12)	66.7308	119.692	70.7178
Wind(6/12)	0	119.6903	70.7172
Wind(7/12)	112.5312	120.6858	71.54
Wind(7/12)	110.5186	119.692	70.7178
Wind(7/12)	0	119.6903	70.7172
Wind(8/12)	68.4134	120.6858	71.54
Wind(8/12)	66.7308	119.692	70.7178
Wind(8/12)	0	119.6903	70.7172
Wind(9/12)	112.5312	120.6858	71.54
Wind(9/12)	110.5186	119.692	70.7178
Wind(9/12)	0	119.6903	70.7172

ASCE 7-22 Auto Wind Load Calculation

This calculation presents the automatically generated lateral wind loads for load pattern Wind according to ASCE 7-22, as calculated by ETABS.

Exposure Parameters

Exposure From = Diaphragms

Exposure Category = C

Wind Direction = 0 degrees

Basic Wind Speed, V [ASCE 26.5.1]

Windward Coefficient, $C_{px,wind}$ [ASCE 27.4.1]

Leeward Coefficient, $C_{px,lee}$ [ASCE 27.4.1] V=175 mph

Windward Coefficient, $C_{py,wind}$ [ASCE 27.4.1]

Leeward Coefficient, $C_{py,lee}$ [ASCE 27.4.1]

Wind Case = Create All

Top Story = Roof

Bottom Story = 1st Floor

Include Parapet = Yes, Parapet Height = 8

Factors and Coefficients

Gradient Height, z_g [ASCE Table 26.9-1]

Emperical Exponent, α [ASCE Table 26.9-1]

Velocity Pressure Exposure Coefficient, K_z; [ASCE Table 27.3-1] Kz=2.01(<z>/<zg>)$^{<<2>/<α>>}$ for 15ft ≤ z ≤ <z_g> Kz=2.01(<15>/<zg>)$^{<<2>/<α>>}$ for z < $z_{g=900}$ 15ft

Topographical Factor, K_{zt} [ASCE 26.8.2]

Directionality Factor, K_d [ASCE 26.6]

Gust Effect Factor, G [ASCE 26.9]

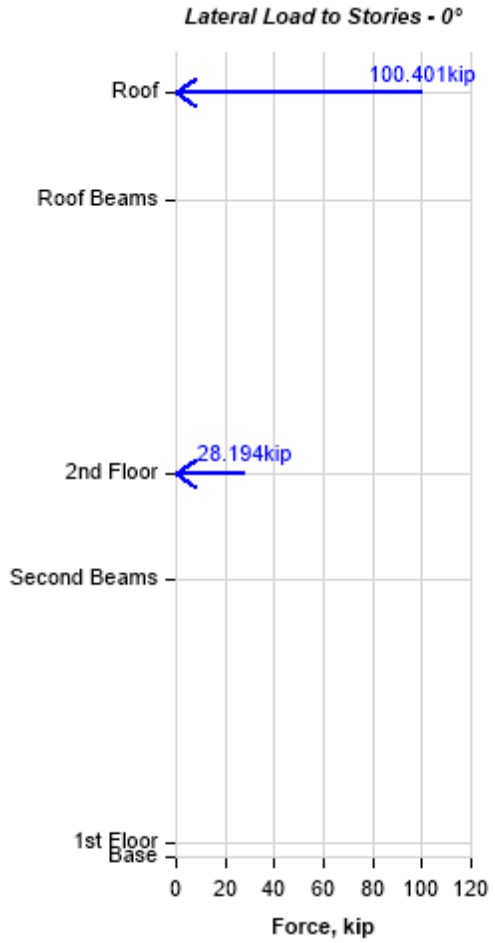
Lateral Loading

Velocity Pressure, q_z [ASCE 27.3.2 Eq. 27.3-1] <qz>=0.00256<Kz><Kzt><Kd><V$^{2>}$

Design Wind Pressure, p [ASCE 27.4.2 Eq. 27.4-2] p=qG<Cp,wind>+<qh><(G<$C_{p,lee>)}$ >

Applied Story Forces

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	100.401	0
Roof Beams	24.5	0	0
2nd Floor	14.33	28.194	0
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0

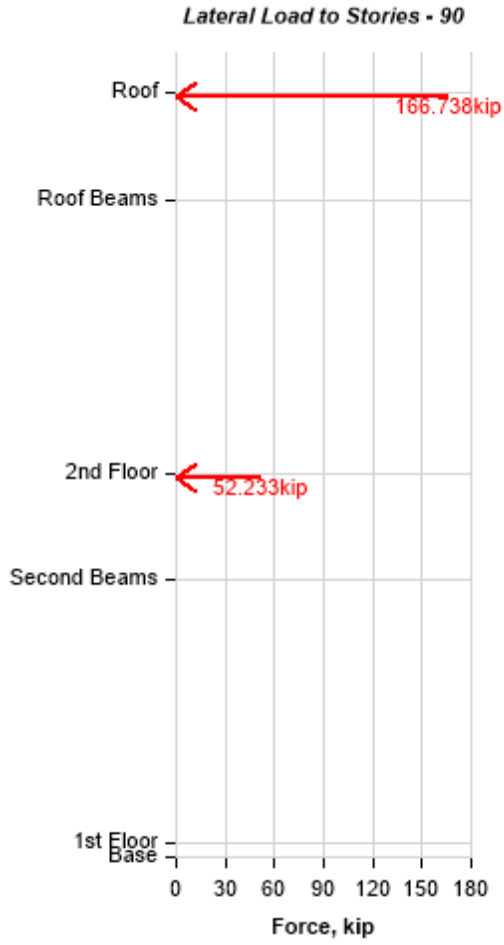


Pat 5

Applied Story Forces

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	0	166.738
Roof Beams	24.5	0	0
2nd Floor	14.33	0	52.233
Second Beams	10.33	0	0

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
1st Floor	0.5	0	0
Base	0	0	0



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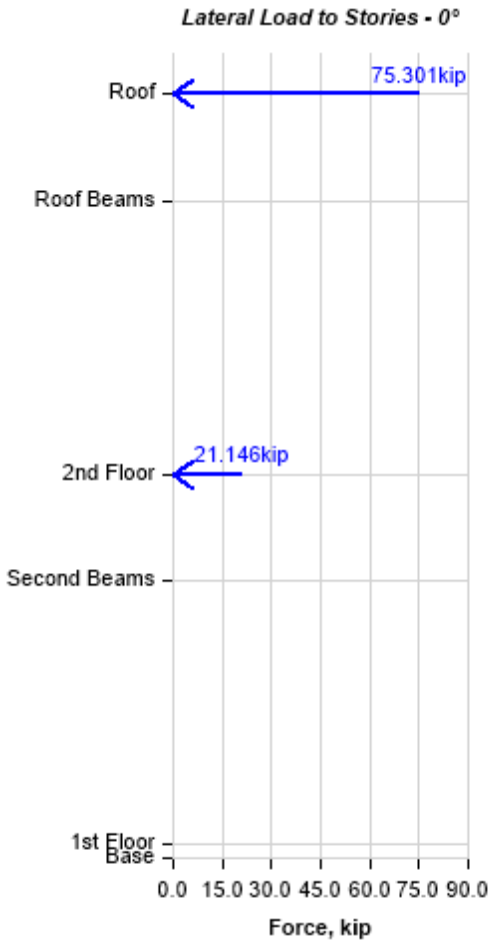
Applied Story Forces

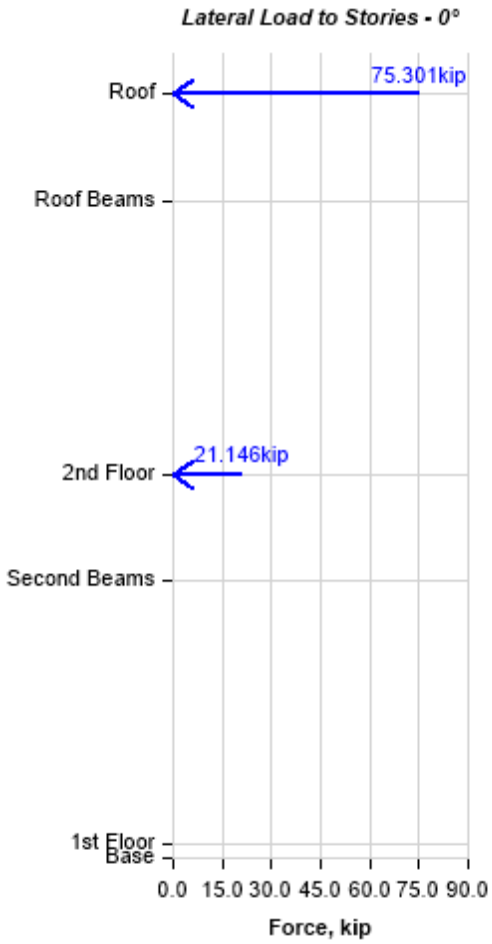
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	75.301	0
Roof Beams	24.5	0	0
2nd Floor	14.33	21.146	0
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



Pat 5

Applied Story Forces

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	75.301	0
Roof Beams	24.5	0	0
2nd Floor	14.33	21.146	0
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



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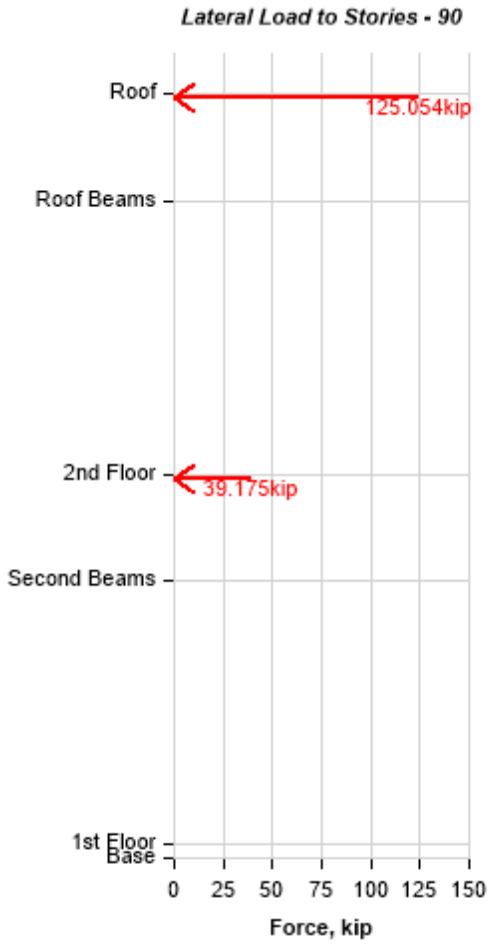
Applied Story Forces

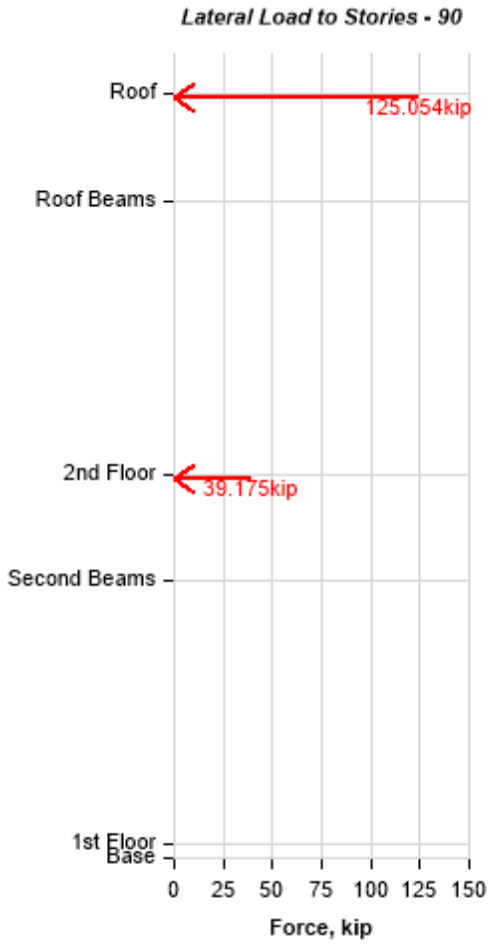
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	0	125.054
Roof Beams	24.5	0	0
2nd Floor	14.33	0	39.175
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



Pat 5

Applied Story Forces

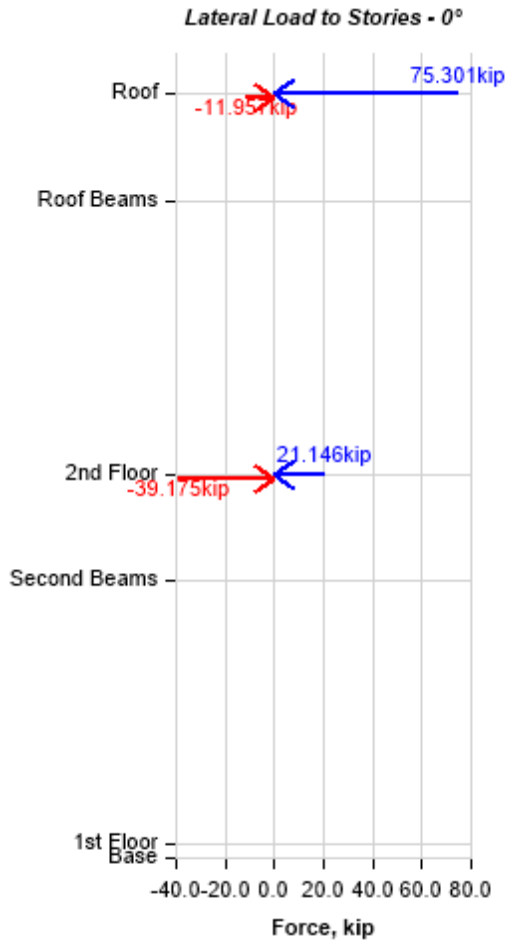
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	0	125.054
Roof Beams	24.5	0	0
2nd Floor	14.33	0	39.175
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



Pat 5

Applied Story Forces

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	75.301	-11.957
Roof Beams	24.5	0	0
2nd Floor	14.33	21.146	-39.175
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



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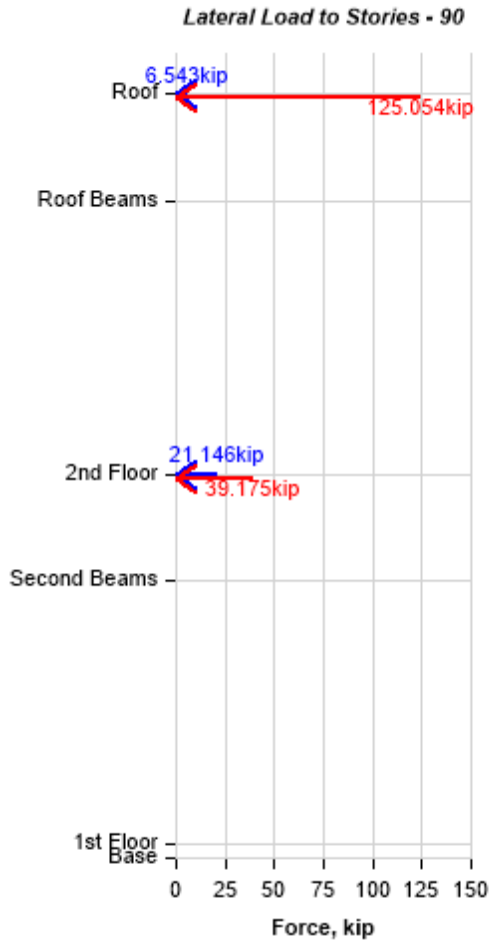
Applied Story Forces

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	6.543	125.054
Roof Beams	24.5	0	0
2nd Floor	14.33	21.146	39.175
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



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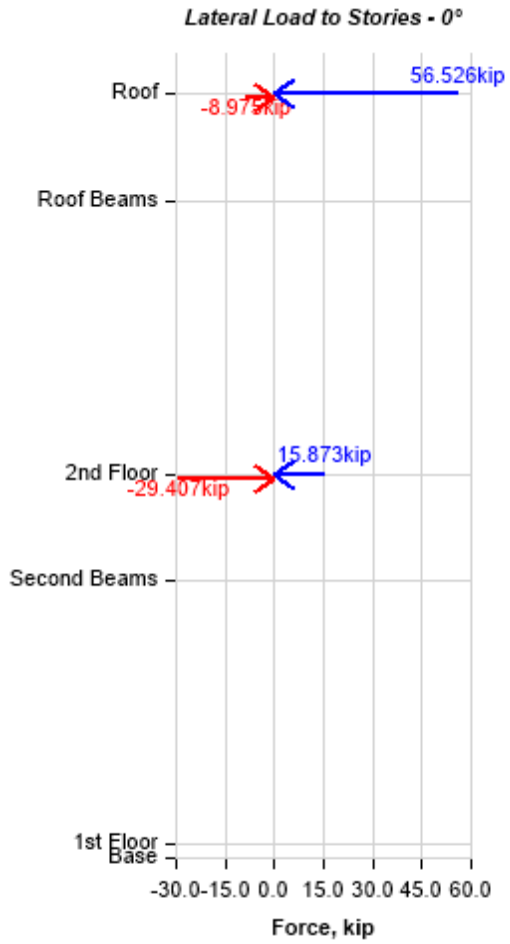
Applied Story Forces

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	56.526	-8.975
Roof Beams	24.5	0	0
2nd Floor	14.33	15.873	-29.407
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



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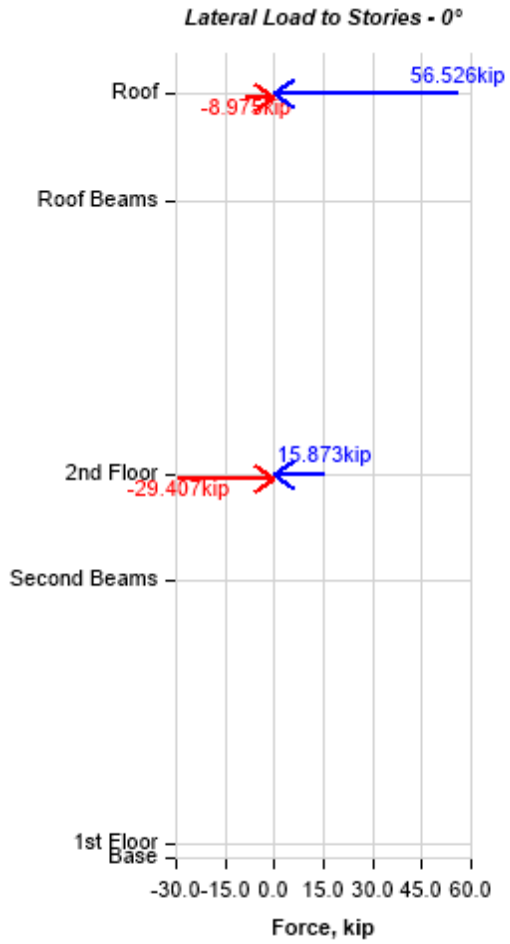
Applied Story Forces

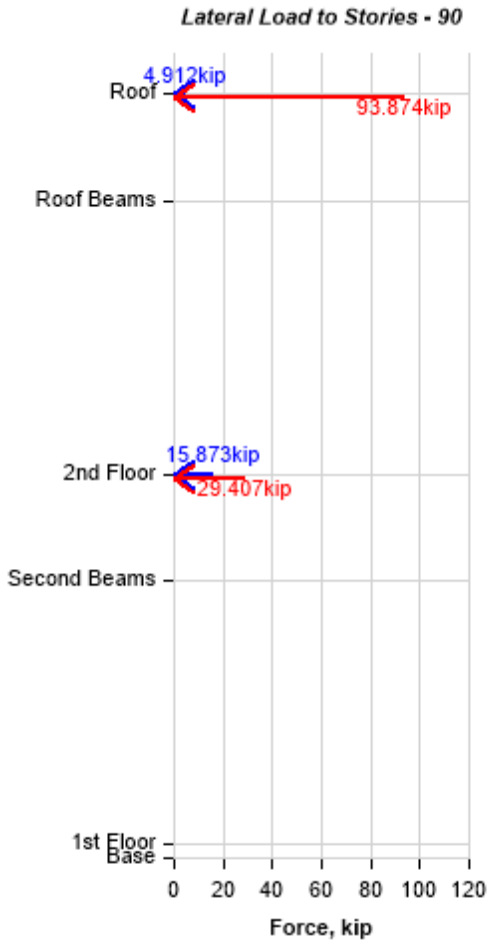
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	56.526	-8.975
Roof Beams	24.5	0	0
2nd Floor	14.33	15.873	-29.407
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



Pat 5

Applied Story Forces

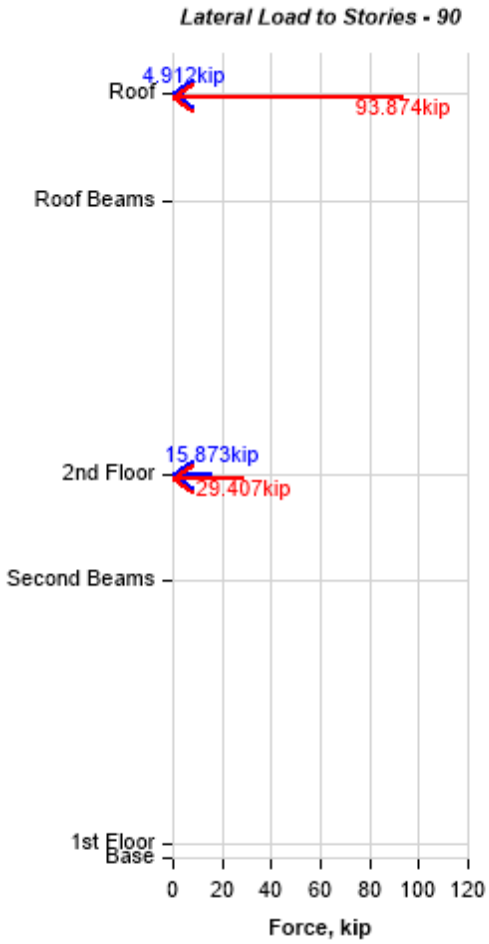
Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	4.912	93.874
Roof Beams	24.5	0	0
2nd Floor	14.33	15.873	29.407
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0



Pat 5

Applied Story Forces

Story	Elevation	X-Dir	Y-Dir
	ft	kip	kip
Roof	28.5	4.912	93.874
Roof Beams	24.5	0	0
2nd Floor	14.33	15.873	29.407
Second Beams	10.33	0	0
1st Floor	0.5	0	0
Base	0	0	0


Lateral Load to Stories - 90
4.912kip
Roof
93.874kip
Roof Beams
15.873kip
2nd Floor
29.407kip
Second Beams
1st Floor
Base
0
20
40
60
80
100
120
Force, kip

Pat 5

3.3 Load Cases

Table 3.3 - Load Case Definitions - Summary

Name	Type
Modal	Modal - Eigen
Dead	Linear Static
Live	Linear Static
Roof Live	Linear Static
Wind	Linear Static
Flood	Linear Static
Reducible Live	Linear Static

3.4 Load Combinations

Table 3.4 - Load Combination Definitions (Part 1 of 2)

Name	Type	Is Auto	Load Name	SF
ASD1 D	Linear Add	No	Dead	1
ASD2 D+L	Linear Add	No	Dead	1
ASD2 D+L			Live	1
ASD2 D+L			Reducible Live	1
ASD3 D+Lr	Linear Add	No	Dead	1
ASD3 D+Lr			Roof Live	1
ASD4 D+0.75L+0.75Lr	Linear Add	No	Dead	1
ASD4 D+0.75L+0.75Lr			Live	0.75
ASD4 D+0.75L+0.75Lr			Roof Live	0.75
ASD4 D+0.75L+0.75Lr			Reducible Live	0.75
ASD5a-1 D+0.6W	Linear Add	No	Dead	1
ASD5a-1 D+0.6W			Wind	0.6
ASD5a-2 D-0.6W	Linear Add	No	Dead	1
ASD5a-2 D-0.6W			Wind	-0.6
ASD5b-1 D+0.75Fa+0.6W	Linear Add	No	Dead	1
ASD5b-1 D+0.75Fa+0.6W			Flood	0.75
ASD5b-1 D+0.75Fa+0.6W			Wind	0.6
ASD5b-2 D+0.75Fa-0.6W	Linear Add	No	Dead	1
ASD5b-2 D+0.75Fa-0.6W			Flood	0.75
ASD5b-2 D+0.75Fa-0.6W			Wind	-0.6
ASD6a-1 D+0.75L+0.75Lr+0.45W	Linear Add	No	Dead	1
ASD6a-1 D+0.75L+0.75Lr+0.45W			Live	0.75
ASD6a-1 D+0.75L+0.75Lr+0.45W			Roof Live	0.75
ASD6a-1 D+0.75L+0.75Lr+0.45W			Wind	0.45
ASD6a-1 D+0.75L+0.75Lr+0.45W			Reducible Live	0.75
ASD6a-2 D+0.75L+0.75Lr-0.45W	Linear Add	No	Dead	1
ASD6a-2 D+0.75L+0.75Lr-0.45W			Live	0.75
ASD6a-2 D+0.75L+0.75Lr-0.45W			Roof Live	0.75
ASD6a-2 D+0.75L+0.75Lr-0.45W			Wind	-0.45
ASD6a-2 D+0.75L+0.75Lr-0.45W			Reducible Live	0.75
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	Linear Add	No	Dead	1
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W			Live	0.75
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W			Roof Live	0.75
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W			Flood	0.75
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W			Wind	0.45
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W			Reducible Live	0.75
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	Linear Add	No	Dead	1
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W			Live	0.75
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W			Roof Live	0.75
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W			Flood	0.75
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W			Wind	-0.45

Name	Type	Is Auto	Load Name	SF
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W			Reducible Live	0.75
ASD7a-1 0.6D+0.6W	Linear Add	No	Dead	0.6
ASD7a-1 0.6D+0.6W			Wind	0.6
ASD7a-2 0.6D-0.6W	Linear Add	No	Dead	0.6
ASD7a-2 0.6D-0.6W			Wind	-0.6
ASD7b-1 0.6D+0.75Fa+0.6W	Linear Add	No	Dead	0.6
ASD7b-1 0.6D+0.75Fa+0.6W			Flood	0.75
ASD7b-1 0.6D+0.75Fa+0.6W			Wind	0.6
ASD7b-2 0.6D+0.75Fa-0.6W	Linear Add	No	Dead	0.6
ASD7b-2 0.6D+0.75Fa-0.6W			Flood	0.75
ASD7b-2 0.6D+0.75Fa-0.6W			Wind	-0.6
$ASDEnv_{WindOnly}$	Envelope	No	Wind	0.6
ASD Envelope	Envelope	No	ASD1 D	1
ASD Envelope			ASD2 D+L	1
ASD Envelope			ASD3 D+Lr	1
ASD Envelope			ASD4 D+0.75L+0.75Lr	1
ASD Envelope			ASD5a-1 D+0.6W	1
ASD Envelope			ASD5a-2 D-0.6W	1
ASD Envelope			ASD6a-1 D+0.75L+0.75Lr+0.45W	1
ASD Envelope			ASD6a-2 D+0.75L+0.75Lr-0.45W	1
ASD Envelope			ASD7a-1 0.6D+0.6W	1
ASD Envelope			ASD7a-2 0.6D-0.6W	1
ASD Envelope			ASD5b-1 D+0.75Fa+0.6W	1
ASD Envelope			ASD5b-2 D+0.75Fa-0.6W	1
ASD Envelope			ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	1
ASD Envelope			ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	1
ASD Envelope			ASD7b-1 0.6D+0.75Fa+0.6W	1
ASD Envelope			ASD7b-2 0.6D+0.75Fa-0.6W	1
LRFD1 1.4D	Linear Add	No	Dead	1.4
LRFD2 1.2D+1.6L+0.5Lr	Linear Add	No	Dead	1.2
LRFD2 1.2D+1.6L+0.5Lr			Live	1.6
LRFD2 1.2D+1.6L+0.5Lr			Roof Live	0.5
LRFD2 1.2D+1.6L+0.5Lr			Reducible Live	1.6
LRFD3 1.2D+1.0L+1.6Lr	Linear Add	No	Dead	1.2
LRFD3 1.2D+1.0L+1.6Lr			Live	1
LRFD3 1.2D+1.0L+1.6Lr			Roof Live	1.6
LRFD3 1.2D+1.0L+1.6Lr			Reducible Live	1
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	Linear Add	No	Dead	1.2
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W			Live	1
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W			Roof Live	0.5
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W			Wind	1
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W			Reducible Live	1
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	Linear Add	No	Dead	1.2
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W			Live	1
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W			Roof Live	0.5
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W			Wind	-1
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W			Reducible Live	1
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	Linear Add	No	Dead	1.2
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W			Live	1
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W			Roof Live	0.5
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W			Flood	1
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W			Wind	0.5
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W			Reducible Live	1
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	Linear Add	No	Dead	1.2
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W			Live	1
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W			Roof Live	0.5

Name	Type	Is Auto	Load Name	SF
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W			Flood	1
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W			Wind	-0.5
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W			Reducible Live	1
LRFD6a-1 0.9D+1.0W	Linear Add	No	Dead	0.9
LRFD6a-1 0.9D+1.0W			Wind	1
LRFD6a-2 0.9D-1.0W	Linear Add	No	Dead	0.9
LRFD6a-2 0.9D-1.0W			Wind	-1
LRFD6b-1 0.9D+1.0Fa+0.5W	Linear Add	No	Dead	0.9
LRFD6b-1 0.9D+1.0Fa+0.5W			Flood	1
LRFD6b-1 0.9D+1.0Fa+0.5W			Wind	0.5
LRFD6b-2 0.9D+1.0Fa-0.5W	Linear Add	No	Dead	0.9
LRFD6b-2 0.9D+1.0Fa-0.5W			Flood	1
LRFD6b-2 0.9D+1.0Fa-0.5W			Wind	-0.5
$LRFDEnv_{WindOnly}$	Envelope	No	Wind	1
LRFD Envelope	Envelope	No	LRFD1 1.4D	1
LRFD Envelope			LRFD2 1.2D+1.6L+0.5Lr	1
LRFD Envelope			LRFD3 1.2D+1.0L+1.6Lr	1
LRFD Envelope			LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	1
LRFD Envelope			LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	1
LRFD Envelope			LRFD6a-1 0.9D+1.0W	1
LRFD Envelope			LRFD6a-2 0.9D-1.0W	1
LRFD Envelope			LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	1
LRFD Envelope			LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	1
LRFD Envelope			LRFD6b-1 0.9D+1.0Fa+0.5W	1
LRFD Envelope			LRFD6b-2 0.9D+1.0Fa-0.5W	1

Table 3.4 - Load Combination Definitions (Part 2 of 2)

Name	Notes
ASD1 D	
ASD2 D+L	
ASD2 D+L	
ASD2 D+L	
ASD3 D+Lr	
ASD3 D+Lr	
ASD4 D+0.75L+0.75Lr	
ASD4 D+0.75L+0.75Lr	
ASD4 D+0.75L+0.75Lr	
ASD4 D+0.75L+0.75Lr	
ASD5a-1 D+0.6W	
ASD5a-1 D+0.6W	
ASD5a-2 D-0.6W	
ASD5a-2 D-0.6W	
ASD5b-1 D+0.75Fa+0.6W	
ASD5b-1 D+0.75Fa+0.6W	
ASD5b-1 D+0.75Fa+0.6W	
ASD5b-2 D+0.75Fa-0.6W	
ASD5b-2 D+0.75Fa-0.6W	
ASD5b-2 D+0.75Fa-0.6W	
ASD6a-1 D+0.75L+0.75Lr+0.45W	
ASD6a-1 D+0.75L+0.75Lr+0.45W	
ASD6a-1 D+0.75L+0.75Lr+0.45W	
ASD6a-1 D+0.75L+0.75Lr+0.45W	
ASD6a-1 D+0.75L+0.75Lr+0.45W	
ASD6a-2 D+0.75L+0.75Lr-0.45W	
ASD6a-2 D+0.75L+0.75Lr-0.45W	
ASD6a-2 D+0.75L+0.75Lr-0.45W	

Name	Notes
ASD6a-2 D+0.75L+0.75Lr-0.45W	
ASD6a-2 D+0.75L+0.75Lr-0.45W	
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	
ASD7a-1 0.6D+0.6W	
ASD7a-1 0.6D+0.6W	
ASD7a-2 0.6D-0.6W	
ASD7a-2 0.6D-0.6W	
ASD7b-1 0.6D+0.75Fa+0.6W	
ASD7b-1 0.6D+0.75Fa+0.6W	
ASD7b-1 0.6D+0.75Fa+0.6W	
ASD7b-2 0.6D+0.75Fa-0.6W	
ASD7b-2 0.6D+0.75Fa-0.6W	
ASD7b-2 0.6D+0.75Fa-0.6W	
$ASDEnv_{WindOnly}$	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
ASD Envelope	
LRFD1 1.4D	
LRFD2 1.2D+1.6L+0.5Lr	
LRFD2 1.2D+1.6L+0.5Lr	
LRFD2 1.2D+1.6L+0.5Lr	
LRFD2 1.2D+1.6L+0.5Lr	
LRFD3 1.2D+1.0L+1.6Lr	
LRFD3 1.2D+1.0L+1.6Lr	
LRFD3 1.2D+1.0L+1.6Lr	
LRFD3 1.2D+1.0L+1.6Lr	
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	

Name	Notes
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	
LRFD6a-1 0.9D+1.0W	
LRFD6a-1 0.9D+1.0W	
LRFD6a-2 0.9D-1.0W	
LRFD6a-2 0.9D-1.0W	
LRFD6b-1 0.9D+1.0Fa+0.5W	
LRFD6b-1 0.9D+1.0Fa+0.5W	
LRFD6b-1 0.9D+1.0Fa+0.5W	
LRFD6b-2 0.9D+1.0Fa-0.5W	
LRFD6b-2 0.9D+1.0Fa-0.5W	
LRFD6b-2 0.9D+1.0Fa-0.5W	
$LRFDEnv_{WindOnly}$	
LRFD Envelope	
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LRFD Envelope	

4 Analysis Results

This chapter provides analysis results.

4.1 Structure Results

Table 4.1 - Base Reactions (Part 1 of 2)

Output Case	Case Type	Step Type	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft
Dead	LinStatic		0	0	2271.09	153248.4865	-294441.7675
Live	LinStatic		0	0	246.543	17435.362	-31168.531
Roof Live	LinStatic		0	0	130.92	8771.7471	-16991.8214
Wind	LinStatic	Max	0	51.131	0	5522.1793	1.2507
Wind	LinStatic	Min	-128.595	-218.971	0	-906.1791	-3267.2991
Flood	LinStatic		0	0	0	0	0
Reducible Live	LinStatic		0	0	0	0	0
ASD1 D	Combination		0	0	2271.09	153248.4865	-294441.7675
ASD2 D+L	Combination		0	0	2517.633	170683.8485	-325610.2985
ASD3 D+Lr	Combination		0	0	2402.011	162020.2336	-311433.5889
ASD4 D+0.75L+0.75Lr	Combination		0	0	2554.188	172903.8184	-330562.0318
ASD5a-1 D+0.6W	Combination	Max	0	30.679	2271.09	156561.794	-294441.0171
ASD5a-1 D+0.6W	Combination	Min	-77.157	-131.383	2271.09	152704.779	-296402.147
ASD5a-2 D-0.6W	Combination	Max	77.157	131.383	2271.09	153792.1939	-292481.3881
ASD5a-2 D-0.6W	Combination	Min	0	-30.679	2271.09	149935.1789	-294442.518
ASD6a-1 D+0.75L+0.75Lr+0.45W	Combination	Max	0	23.009	2554.188	175388.799	-330561.469
ASD6a-1 D+0.75L+0.75Lr+0.45W	Combination	Min	-57.868	-98.537	2554.188	172496.0378	-332032.3164
ASD6a-2 D+0.75L+0.75Lr-0.45W	Combination	Max	57.868	98.537	2554.188	173311.5989	-329091.7472
ASD6a-2 D+0.75L+0.75Lr-0.45W	Combination	Min	0	-23.009	2554.188	170418.8377	-330562.5946
ASD7a-1 0.6D+0.6W	Combination	Max	0	30.679	1362.654	95262.3995	-176664.3101
ASD7a-1 0.6D+0.6W	Combination	Min	-77.157	-131.383	1362.654	91405.3844	-178625.44
ASD7a-2 0.6D-0.6W	Combination	Max	77.157	131.383	1362.654	92492.7993	-174704.6811
ASD7a-2 0.6D-0.6W	Combination	Min	0	-30.679	1362.654	88635.7843	-176665.811
LRFD1 1.4D	Combination		0	0	3179.526	214547.8811	-412218.4745
LRFD2 1.2D+1.6L+0.5Lr	Combination		0	0	3185.237	216180.6366	-411695.6813
LRFD3 1.2D+1.0L+1.6Lr	Combination		0	0	3181.324	215368.3412	-411685.5662
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	Combination	Max	0	51.131	3037.312	211241.5986	-392993.312
LRFD4a-1 1.2D+1.0L+0.5Lr+1.0W	Combination	Min	-128.595	-218.971	3037.312	204813.2403	-396261.8618
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	Combination	Max	128.595	218.971	3037.312	206625.5985	-389727.2636
LRFD4a-2 1.2D+1.0L+0.5Lr-1.0W	Combination	Min	0	-51.131	3037.312	200197.2401	-392995.8135
LRFD6a-1 0.9D+1.0W	Combination	Max	0	51.131	2043.981	143445.8171	-264996.34
LRFD6a-1 0.9D+1.0W	Combination	Min	-128.595	-218.971	2043.981	137017.4588	-268264.8899
LRFD6a-2 0.9D-1.0W	Combination	Max	128.595	218.971	2043.981	138829.8169	-261730.2917
LRFD6a-2 0.9D-1.0W	Combination	Min	0	-51.131	2043.981	132401.4586	-264998.8415
ASD5b-1 D+0.75Fa+0.6W	Combination	Max	0	30.679	2271.09	156561.794	-294441.0171
ASD5b-1 D+0.75Fa+0.6W	Combination	Min	-77.157	-131.383	2271.09	152704.779	-296402.147
ASD5b-2 D+0.75Fa-0.6W	Combination	Max	77.157	131.383	2271.09	153792.1939	-292481.3881
ASD5b-2 D+0.75Fa-0.6W	Combination	Min	0	-30.679	2271.09	149935.1789	-294442.518
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	Combination	Max	0	23.009	2554.188	175388.799	-330561.469
ASD6b-1 D+0.75L+0.75Lr+0.75Fa+0.45W	Combination	Min	-57.868	-98.537	2554.188	172496.0378	-332032.3164
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	Combination	Max	57.868	98.537	2554.188	173311.5989	-329091.7472
ASD6b-2 D+0.75L+0.75Lr+0.75Fa-0.45W	Combination	Min	0	-23.009	2554.188	170418.8377	-330562.5946
ASD7b-1 0.6D+0.75Fa+0.6W	Combination	Max	0	30.679	1362.654	95262.3995	-176664.3101
ASD7b-1 0.6D+0.75Fa+0.6W	Combination	Min	-77.157	-131.383	1362.654	91405.3844	-178625.44
ASD7b-2 0.6D+0.75Fa-0.6W	Combination	Max	77.157	131.383	1362.654	92492.7993	-174704.6811
ASD7b-2 0.6D+0.75Fa-0.6W	Combination	Min	0	-30.679	1362.654	88635.7843	-176665.811
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	Combination	Max	0	25.566	3037.312	208480.509	-392993.9374
LRFD4b-1 1.2D+1.0L+0.5Lr+1.0Fa+0.5W	Combination	Min	-64.298	-109.486	3037.312	205266.3298	-394628.2123
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	Combination	Max	64.298	109.486	3037.312	206172.5089	-391360.9132

Output Case	Case Type	Step Type	FX kip	FY kip	FZ kip	MX kip-ft	MY kip-ft
LRFD4b-2 1.2D+1.0L+0.5Lr+1.0Fa-0.5W	Combination	Min	0	-25.566	3037.312	202958.3297	-392995.1881
LRFD6b-1 0.9D+1.0Fa+0.5W	Combination	Max	0	25.566	2043.981	140684.7275	-264996.9654
LRFD6b-1 0.9D+1.0Fa+0.5W	Combination	Min	-64.298	-109.486	2043.981	137470.5483	-266631.2403
LRFD6b-2 0.9D+1.0Fa-0.5W	Combination	Max	64.298	109.486	2043.981	138376.7274	-263363.9412
LRFD6b-2 0.9D+1.0Fa-0.5W	Combination	Min	0	-25.566	2043.981	135162.5482	-264998.2162
ASD Envelope	Combination	Max	77.157	131.383	2554.188	175388.799	-174704.6811
ASD Envelope	Combination	Min	-77.157	-131.383	1362.654	88635.7843	-332032.3164
LRFD Envelope	Combination	Max	128.595	218.971	3185.237	216180.6366	-261730.2917
LRFD Envelope	Combination	Min	-128.595	-218.971	2043.981	132401.4586	-412218.4745
LRFDEnv$_{WindOnly}$	Combination	Max	0	51.131	0	5522.1793	1.2507
LRFDEnv$_{WindOnly}$	Combination	Min	-128.595	-218.971	0	-906.1791	-3267.2991
ASDEnv$_{WindOnly}$	Combination	Max	0	30.679	0	3313.3076	0.7504
ASDEnv$_{WindOnly}$	Combination	Min	-77.157	-131.383	0	-543.7074	-1960.3795

Table 4.2 - Centers Of Mass And Rigidity

Story	Diaphragm	Mass X lb-s2/ft	Mass Y lb-s2/ft	XCM ft	YCM ft	Cum Mass X lb-s2/ft	Cum Mass Y lb-s2/ft	XCCM ft	YCCM ft	XCR ft	YCR ft
Roof	D1	25062.63	25062.63	130.797	66.7791	25062.63	25062.63	130.797	66.7791		
2nd Floor	D1	28992.42	28992.42	128.2064	70.4815	54055.05	54055.05	129.4075	68.7649		
1st Floor	D1	0	0	119.6903	70.7172	54055.05	54055.05	129.4075	68.7649		

4.2 Modal Results

Table 4.3 - Modal Periods And Frequencies

Case	Mode	Period sec	Frequency cyc/sec	CircFreq rad/sec	Eigenvalue rad2/sec2
Modal	1	0.313	3.193	20.0653	402.6169
Modal	2	0.227	4.405	27.6775	766.0415
Modal	3	0.152	6.558	41.2061	1697.9391
Modal	4	0.137	7.307	45.9105	2107.7731
Modal	5	0.116	8.622	54.1721	2934.619
Modal	6	0.111	9.015	56.6424	3208.3618
Modal	7	0.103	9.666	60.7322	3688.3955
Modal	8	0.102	9.793	61.5308	3786.0446
Modal	9	0.101	9.89	62.14	3861.3824
Modal	10	0.099	10.072	63.2862	4005.1468
Modal	11	0.097	10.282	64.604	4173.6727
Modal	12	0.091	10.931	68.681	4717.0795

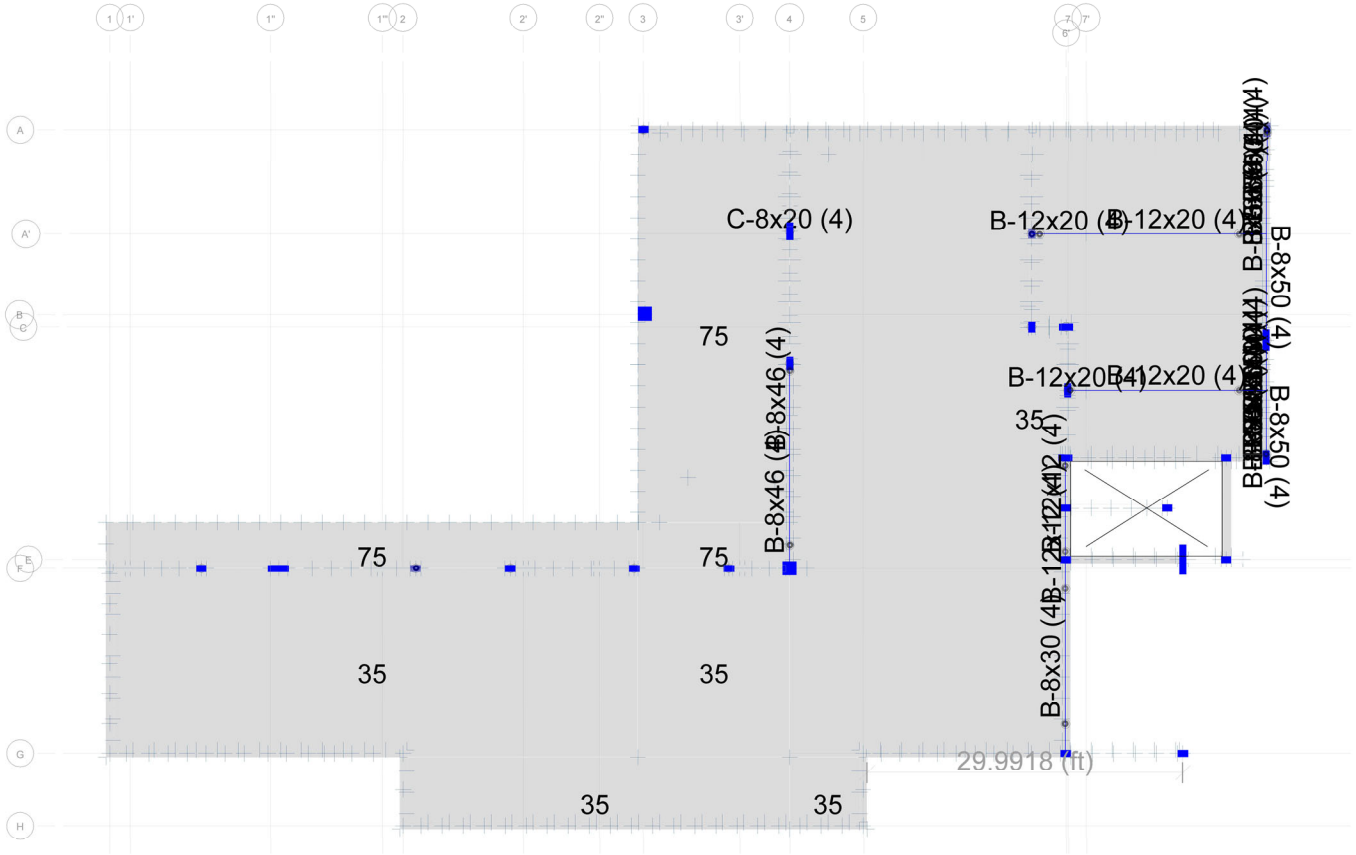
Table 4.4 - Modal Participating Mass Ratios (Part 1 of 2)

Case	Mode	Period sec	UX	UY	UZ	SumUX	SumUY	SumUZ	RX	RY	RZ
Modal	1	0.313	0.0046	0.7449	0	0.0046	0.7449	0	0.2284	0.0015	0.0136
Modal	2	0.227	0	2.568E-06	0	0.0046	0.7449	0	1.695E-05	9.839E-07	0.0004
Modal	3	0.152	0.0013	1.538E-05	0	0.0059	0.7449	0	1.533E-05	0.0004	0.0003
Modal	4	0.137	0.2688	0.0098	0	0.2747	0.7548	0	0.0126	0.0499	0.4747
Modal	5	0.116	0.0196	0.0285	0	0.2944	0.7833	0	0.0972	0.015	0.0989
Modal	6	0.111	0.0086	0.113	0	0.3029	0.8963	0	0.2518	0.0043	0.0156
Modal	7	0.103	0.0007	0.0236	0	0.3036	0.92	0	0.0799	0.0011	0.0127
Modal	8	0.102	0.0005	0.0003	0	0.3042	0.9203	0	0.0004	0.0004	0.003

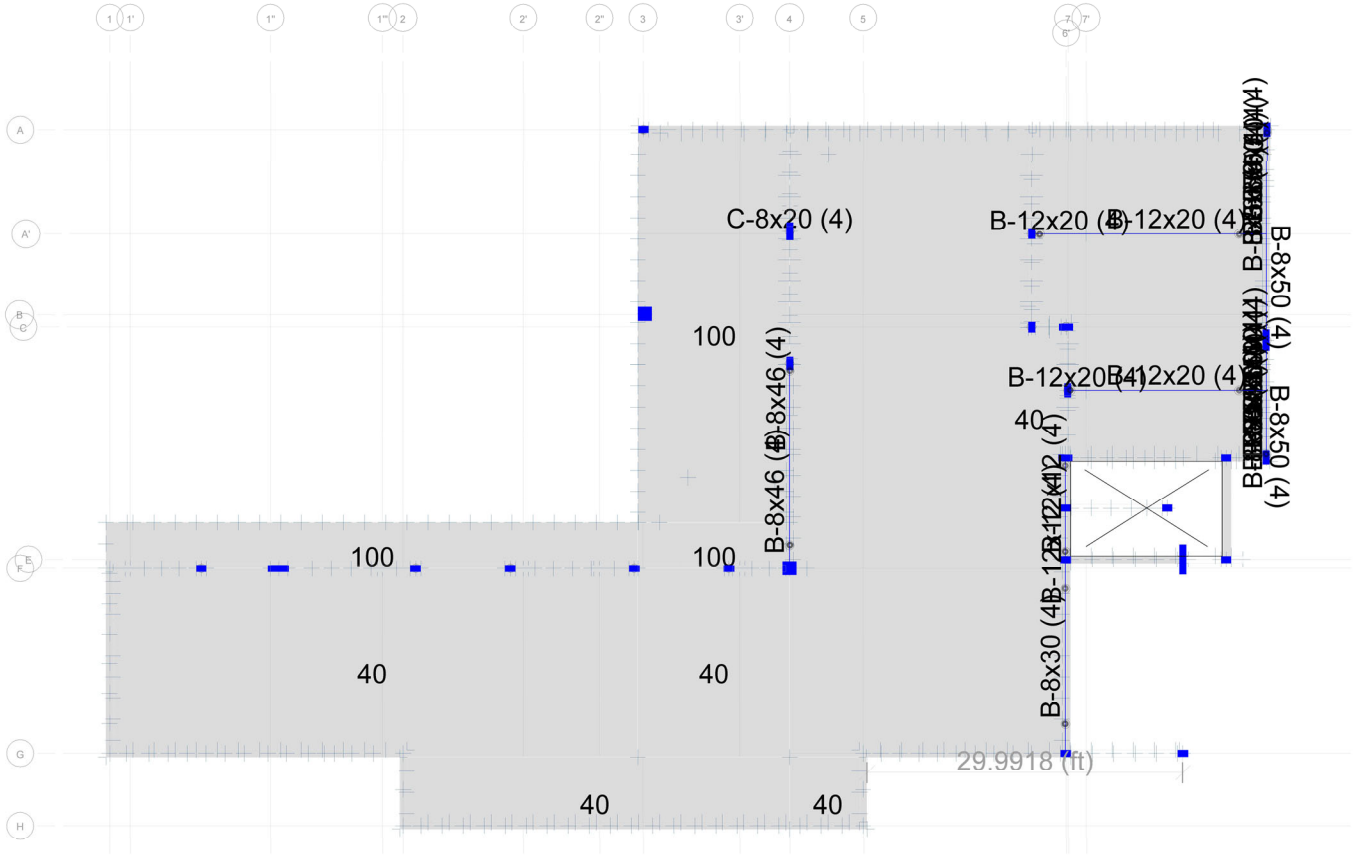
Case	Mode	Period sec	UX	UY	UZ	SumUX	SumUY	SumUZ	RX	RY	RZ
Modal	9	0.101	0.0515	0.0001	0	0.3557	0.9203	0	0.0001	0.0088	0.0062
Modal	10	0.099	0.0996	0.0021	0	0.4553	0.9224	0	0.0119	0.0142	0.0103
Modal	11	0.097	0.2172	4.197E-05	0	0.6725	0.9225	0	0.0007	0.0474	0.1247
Modal	12	0.091	0.0567	0.0081	0	0.7293	0.9305	0	0.0061	0.0094	0.0568

Table 4.4 - Modal Participating Mass Ratios (Part 2 of 2)

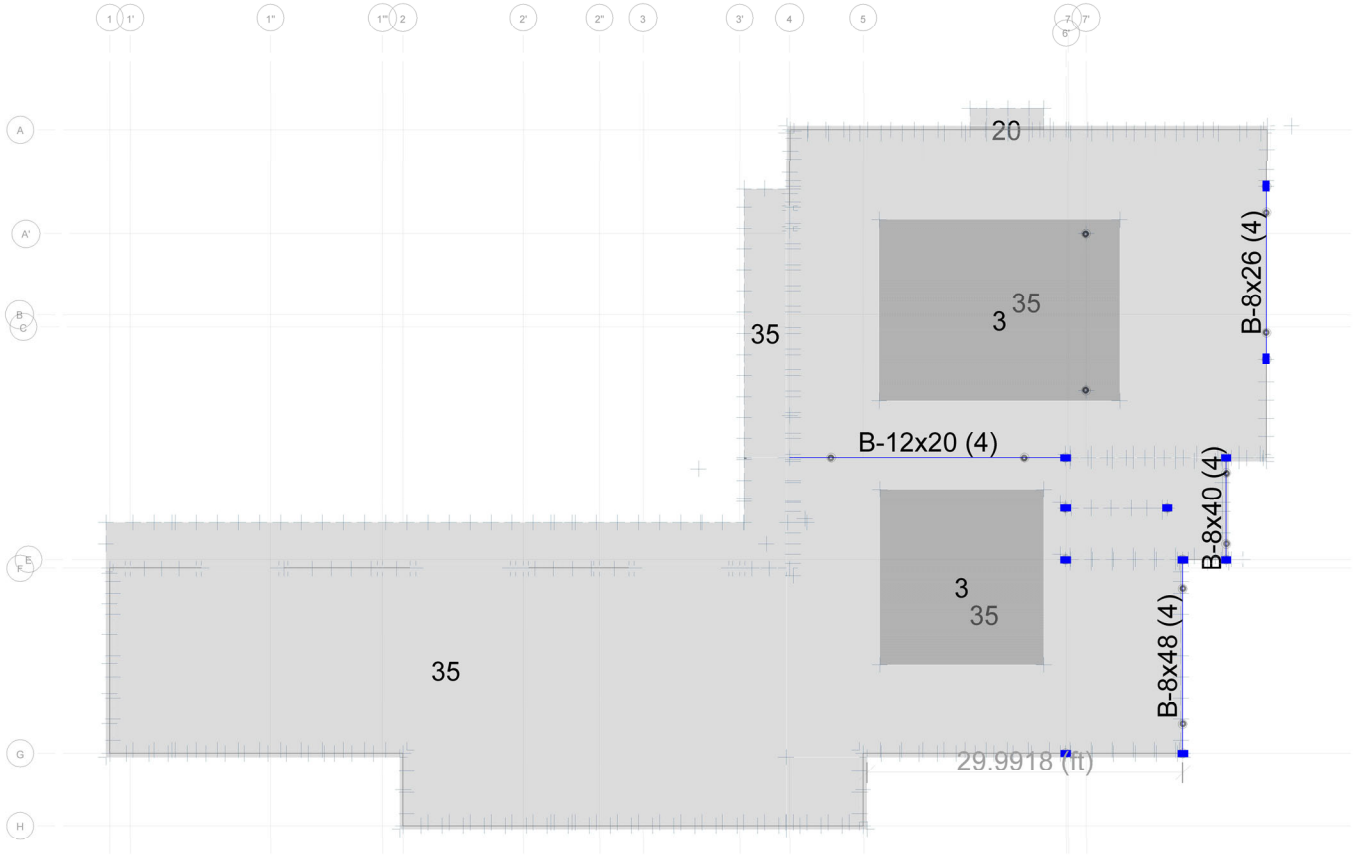
Case	Mode	SumRX	SumRY	SumRZ
Modal	1	0.2284	0.0015	0.0136
Modal	2	0.2285	0.0015	0.014
Modal	3	0.2285	0.0018	0.0143
Modal	4	0.2411	0.0517	0.489
Modal	5	0.3383	0.0667	0.5879
Modal	6	0.5901	0.071	0.6035
Modal	7	0.67	0.0721	0.6163
Modal	8	0.6704	0.0724	0.6193
Modal	9	0.6705	0.0812	0.6255
Modal	10	0.6824	0.0954	0.6358
Modal	11	0.6831	0.1428	0.7605
Modal	12	0.6891	0.1523	0.8172



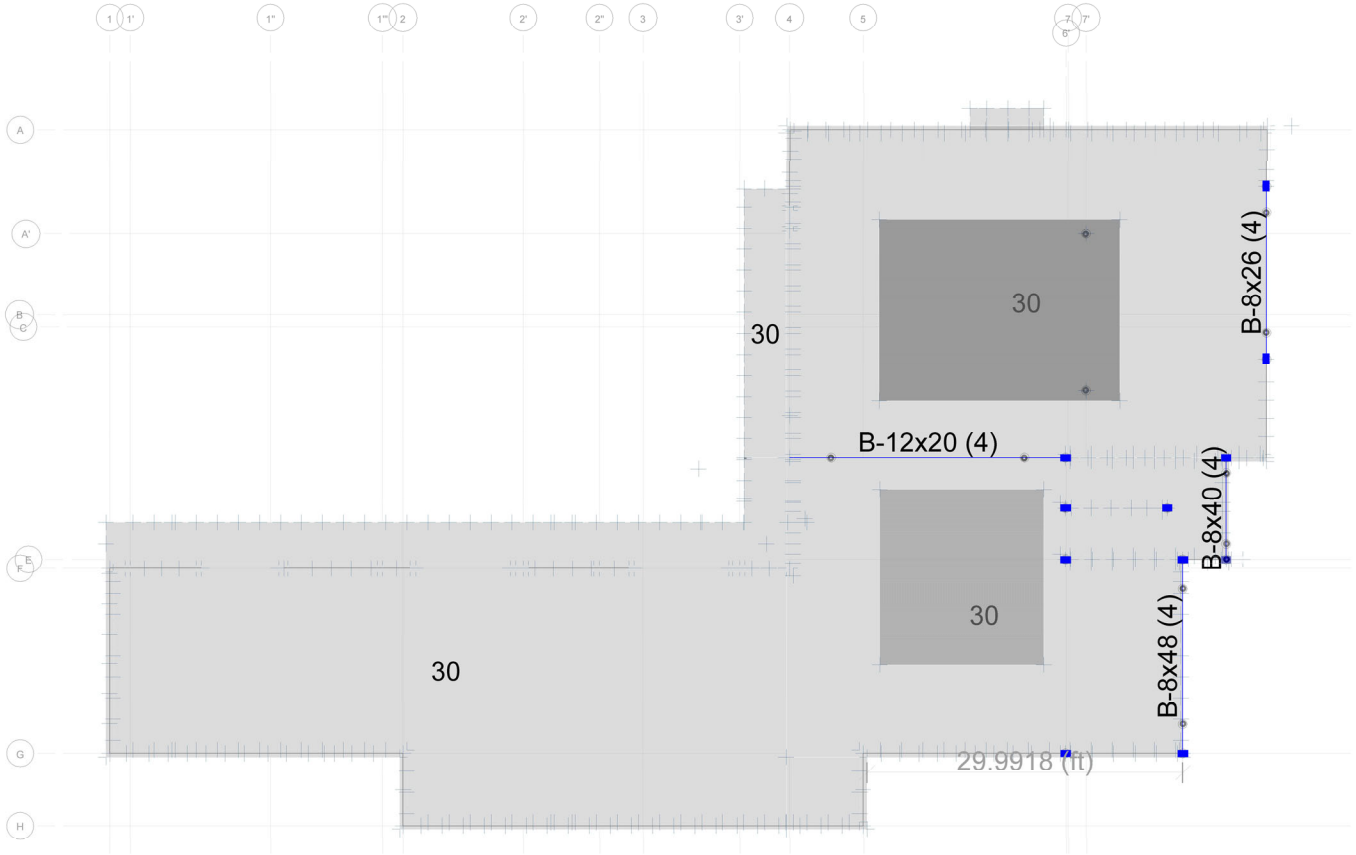
24-0609P8_V02.10.EDB Plan View - 2nd Floor - Z = 14.33 (ft) Uniform Loads Gravity (Super Dead) [lb/ft²]



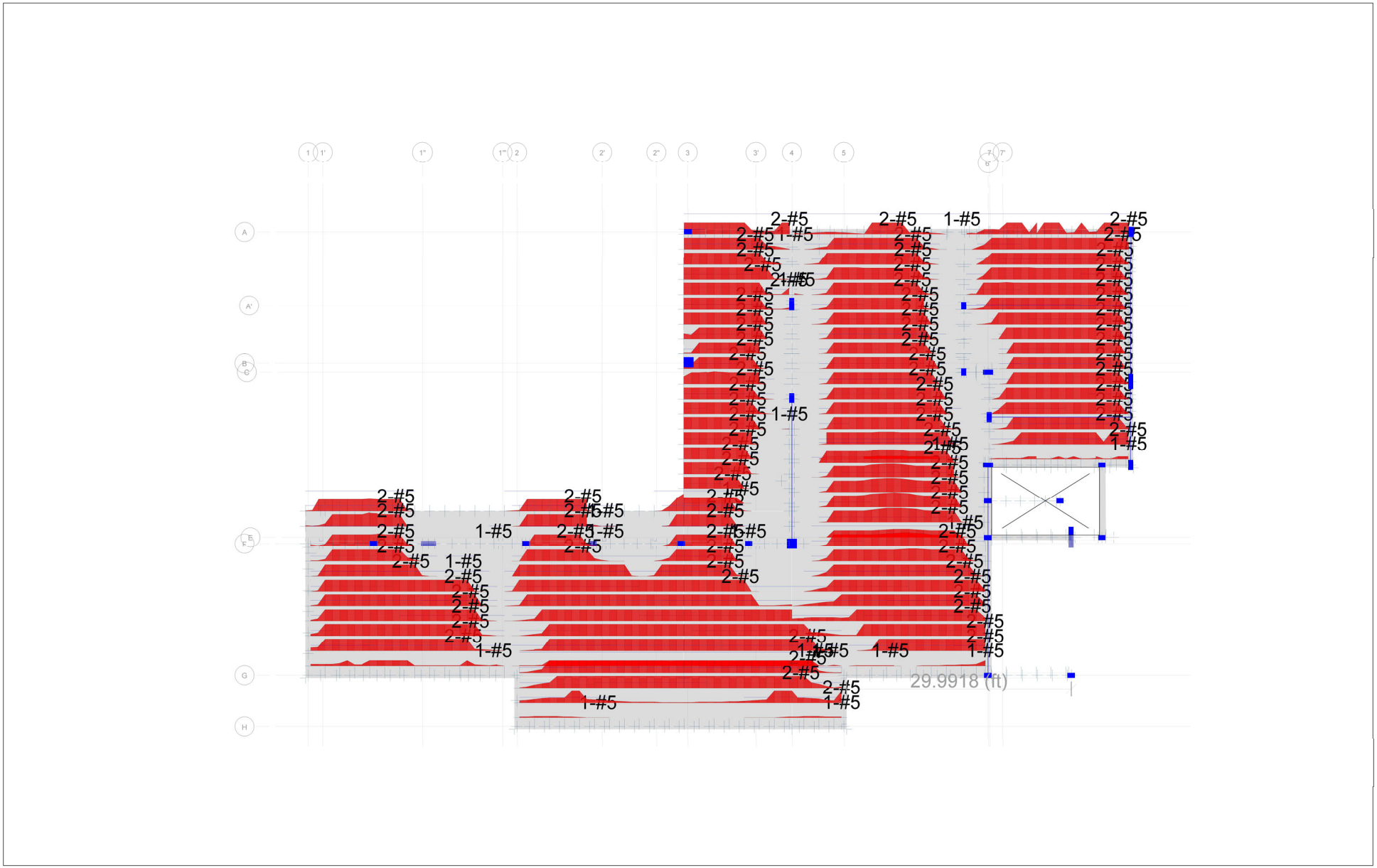
24-0609P8_V02.10.EDB Plan View - 2nd Floor - Z = 14.33 (ft) Uniform Loads Gravity (Live) [lb/ft²]



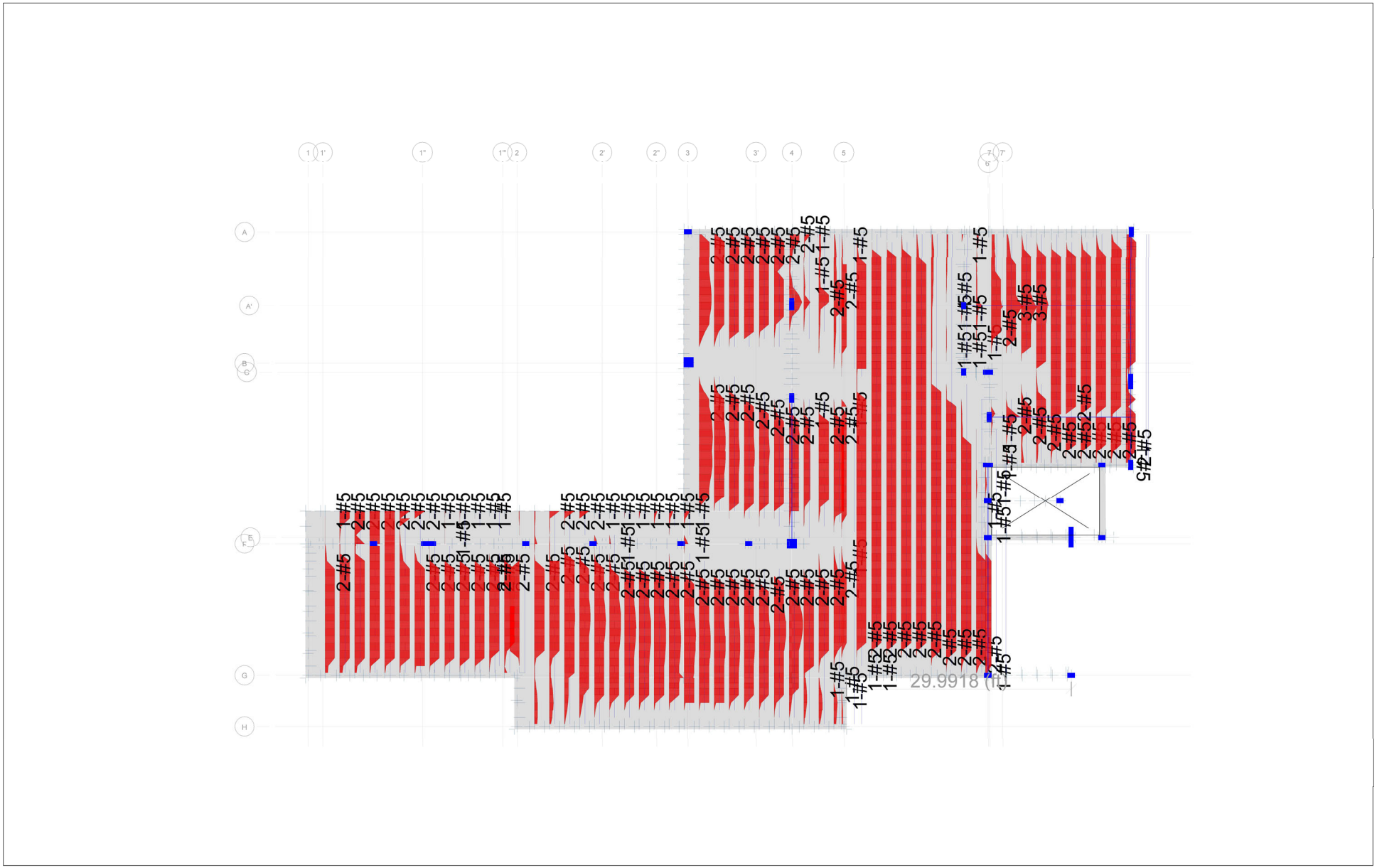
24-0609P8_V02.10.EDB Plan View - Roof - Z = 28.5 (ft) Uniform Loads Gravity (Super Dead) [lb/ft²]



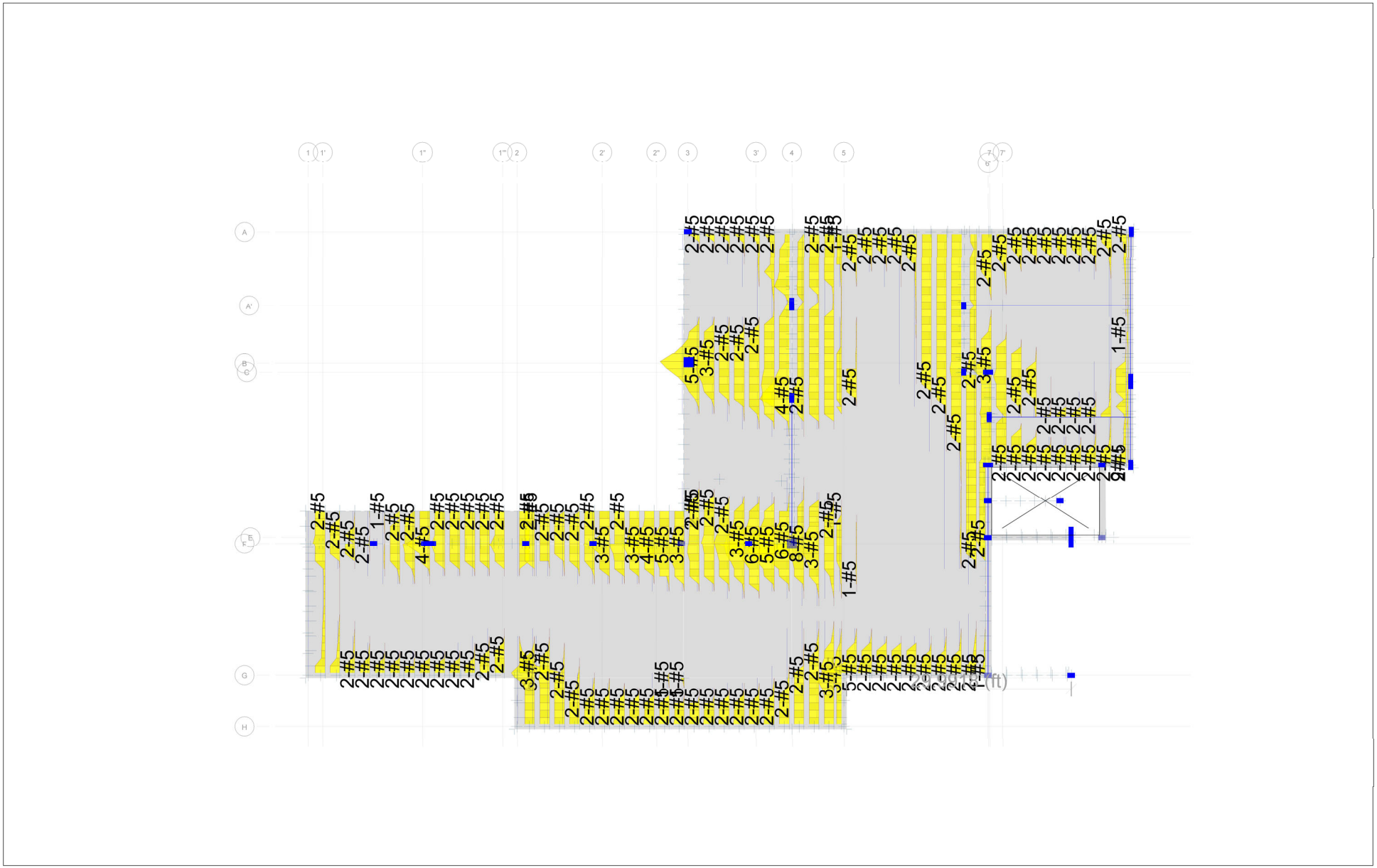
24-0609P8_V02.10.EDB Plan View - Roof - Z = 28.5 (ft) Uniform Loads Gravity (Roof Live) [lb/ft²]



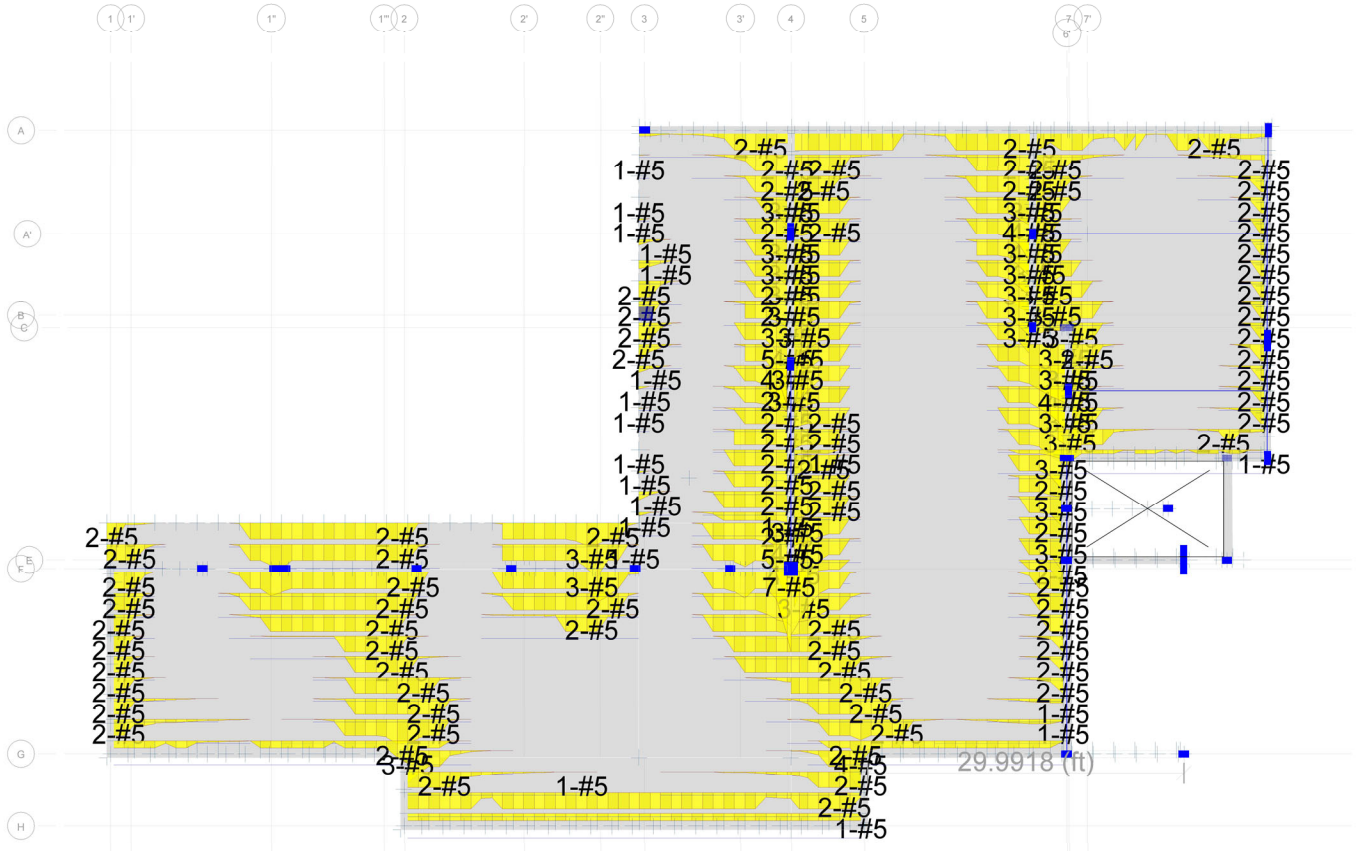
24-0609P8_V02.10.EDBPlan View - 2nd Floor - Z = 14.33 (ft) Slab Strip Design - Layer A - Bottom Reinforcement (Enveloping Flexural)



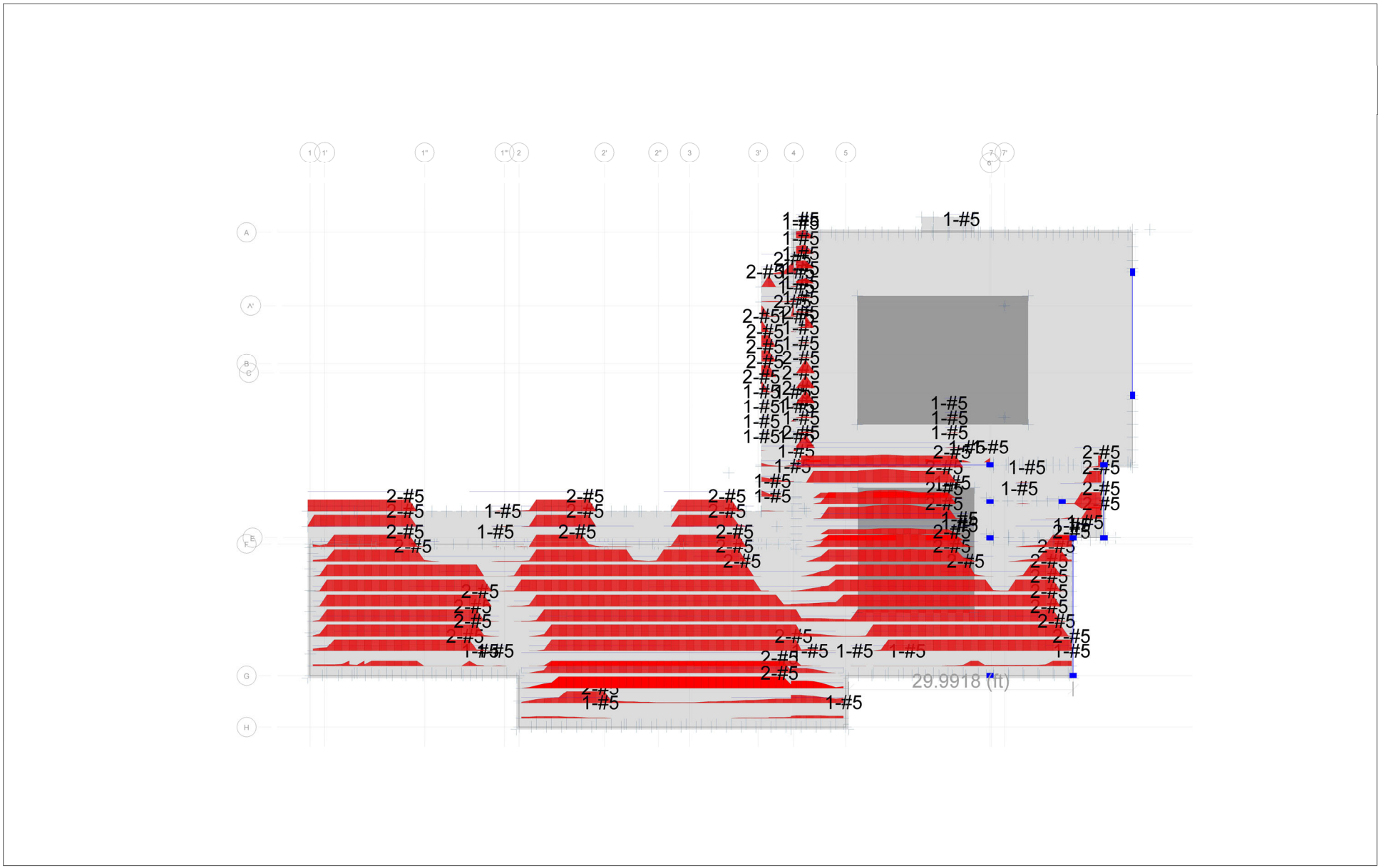
24-0609P8_V02.10.EDBPlan View - 2nd Floor - Z = 14.33 (ft) Slab Strip Design - Layer B - Bottom Reinforcement (Enveloping Flexural)



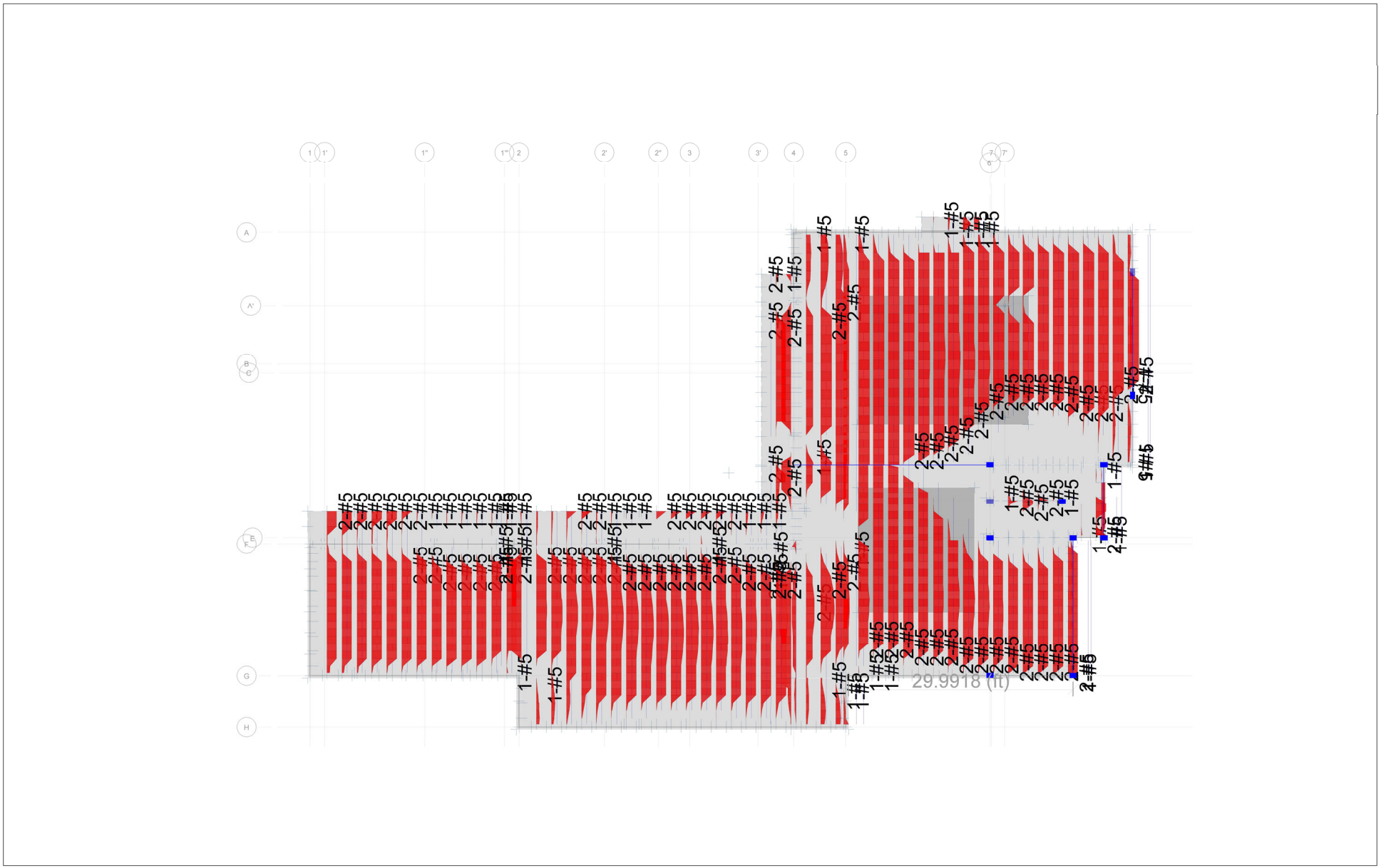
24-0609P8_V02.10.EDB Plan View - 2nd Floor - Z = 14.33 (ft) Slab Strip Design - Layer B - Top Reinforcement (Enveloping Flexural)



24-0609P8_V02.10.EDB Plan View - 2nd Floor - Z = 14.33 (ft) Slab Strip Design - Layer A - Top Reinforcement (Enveloping Flexural)

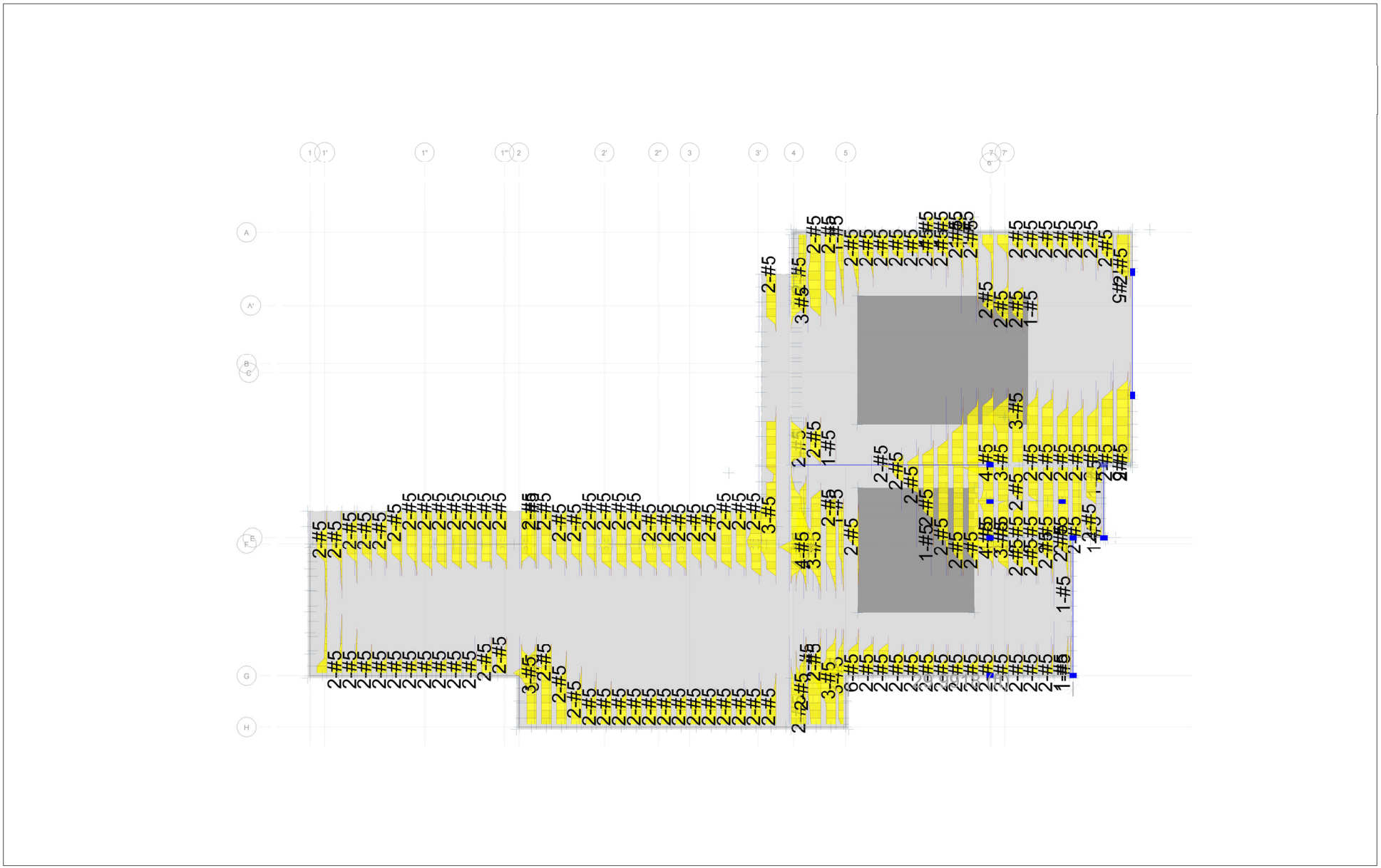


24-0609P8_V02.10.EDB Plan View - Roof - Z = 28.5 (ft) Slab Strip Design - Layer A - Bottom Reinforcement (Enveloping Flexural)



24-0609P8_V02.10.EDB Plan View - Roof - Z = 28.5 (ft) Slab Strip Design - Layer B - Bottom Reinforcement (Enveloping Flexural)

24-0609P8_V02.10.EDB Plan View - Roof - Z = 28.5 (ft) Slab Strip Design - Layer A - Top Reinforcement (Enveloping Flexural)



24-0609P8_V02.10.EDB Plan View - Roof - Z = 28.5 (ft) Slab Strip Design - Layer B - Top Reinforcement (Enveloping Flexural)

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MASONRY WALL

Masonry Slender Wall

DESCRIPTION: 8" masonry wall

Code References

Calculations per TMS 402-16, IBC 2018, CBC 2019
Load Combinations Used : ASCE 7-22 / IBC 2024

General Information

Calculations per TMS 402-16, IBC 2018, CBC 2019

Construction Type : Grouted Hollow Concrete Masonry

F'm	=	2.0 ksi	Nom. Wall Thickness	8	in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625	in	Min Allow Out-of-plane Defl Ra	=	0.0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	3.8125	in			
Em = f'm *	=	900.0	Lower Level Rebar . . .			Minimum Vertical Steel %	=	0.0020
Max % of ρ bal.	=	0.008831	Bar Size	# 5				
Grout Density	=	140 pcf	Bar Spacing	24	in			
Block Weight		Normal Weight	Upper Level Rebar . . .					
Wall Weight	=	55.0 psf	Bar Size	# 5				
			Bar Spacing	24	in			

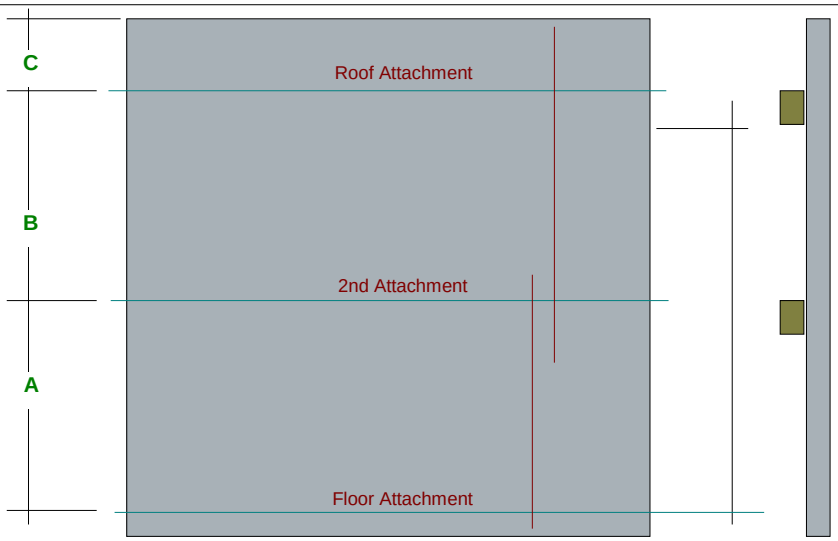
Wall is grouted at rebar cells only

Two-Story Wall Dimensions

A	1st Story Height	=	14 ft
B	2nd Story Height	=	13.5 ft
C	Parapet height	=	1.5 ft

Wall Support Condition Top & Bottom Pinned

Initial Lateral Disp. @ Top Support in



Lateral Loads

Wind Loads :
Full area WIND load 68.57 psf

Seismic Loads :
Wall Weight Seismic Load Input Method : Direct entry of Lateral Wall Weight
Seismic Wall Lateral Load 0 psf

Fp 1.0 = 0.0 psf

Project Title:
Engineer:
Project ID:
Project Descr:

Masonry Slender Wall

Project File: 24-0609 P8.ec6

DESCRIPTION: 8" masonry wall

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

Governing Load Combination . . .		Actual Values . . .		Allowable Values . . .	
PASS Moment Capacity Check		Maximum Bending Stress Rat	0.5821		
+0.90D+W		Max Mu	-1.428 k-ft	Phi * Mn	2.453 k-ft
PASS Service Deflection Check		Actual Defl. Ratio L/	391	Allowable Defl. Ratio	180.0
W Only		Max. Deflection	0.4138 in		
PASS Axial Load Check		Max Pu / Ag	19.273 psi	Max. Allow. Defl.	0.90 in
+1.20D+W		Location	14.225 ft	0.2 * f'm	400.0 psi
PASS Reinforcing Limit Check		Actual ñ	0.003388	Max Allow ñ	0.008297

Maximum Reactions *for Load Combination...*

Top Horizontal	W Only	0.4579 k
Base Horizontal	W Only	0.3705 k
Mid-Ht Horizontal	W Only	1.160 k
Vertical Reaction	+D+0.60W	1.595 k

Design Maximum Combinations - Moments

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load Pu k	Axial Load 0.2*f'm*b*t k	Moment Values Mcr k-ft	Moment Values Mu k-ft	Moment Values Phi	Moment Values Phi Mn k-ft	As in^2	As Ratio	0.6 * rho bal	Bar 'd'
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
+1.20D+0.50W at 14.00 to 14.45	0.990	20.544	0.47	0.62	0.90	2.52	0.155	0.0034	0.0087	0.00
+1.20D+W at 14.00 to 14.45	0.990	20.544	0.47	1.43	0.90	2.52	0.155	0.0034	0.0087	0.00
+0.90D+W at 14.00 to 14.45	0.742	20.544	0.47	1.43	0.90	2.45	0.155	0.0034	0.0088	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000	0.00

Design Maximum Combinations - Deflections

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load Pu k	Moment Values Mcr k-ft	Moment Values Mactual k-ft	Stiffness I gross in^4	Stiffness I cracked in^4	Stiffness I effective in^4	Deflections Deflection in	Deflections Defl. Ratio
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+D+0.60W at 21.65 to 22.10	0.404	0.47	0.51	353.60	25.98	42.604	0.146	1,113.2
+D+0.450W at 21.20 to 21.65	0.429	0.47	0.39	353.60	26.03	353.600	0.105	1,542.8
+0.60D+0.60W at 21.65 to 22.10	0.243	0.47	0.51	353.60	25.07	41.347	0.151	1,075.9
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
W Only at 21.65 to 22.10	0.000	0.47	0.83	353.60	23.68	24.973	0.414	391.5
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Reactions - Vertical & Horizontal

Load Combination	Base Horizontal	Mid Horizontal	Top Horizontal	Vertical @ Wall Base
D Only	0.0 k	0.000 k	0.00 k	1.595 k
+D+0.60W	0.2 k	0.694 k	0.28 k	1.595 k
+D+0.450W	0.2 k	0.516 k	0.21 k	1.595 k
+0.60D+0.60W	0.2 k	0.693 k	0.28 k	0.957 k
+D+0.70E	0.0 k	0.000 k	0.00 k	1.595 k
+D+0.5250E	0.0 k	0.000 k	0.00 k	1.595 k
+0.60D+0.70E	0.0 k	0.000 k	0.00 k	0.957 k
W Only	0.4 k	1.160 k	0.46 k	0.000 k

Masonry Slender Wall

DESCRIPTION: 8" masonry wall

E Only	0.0 k	0.000 k	0.00 k	0.000 k

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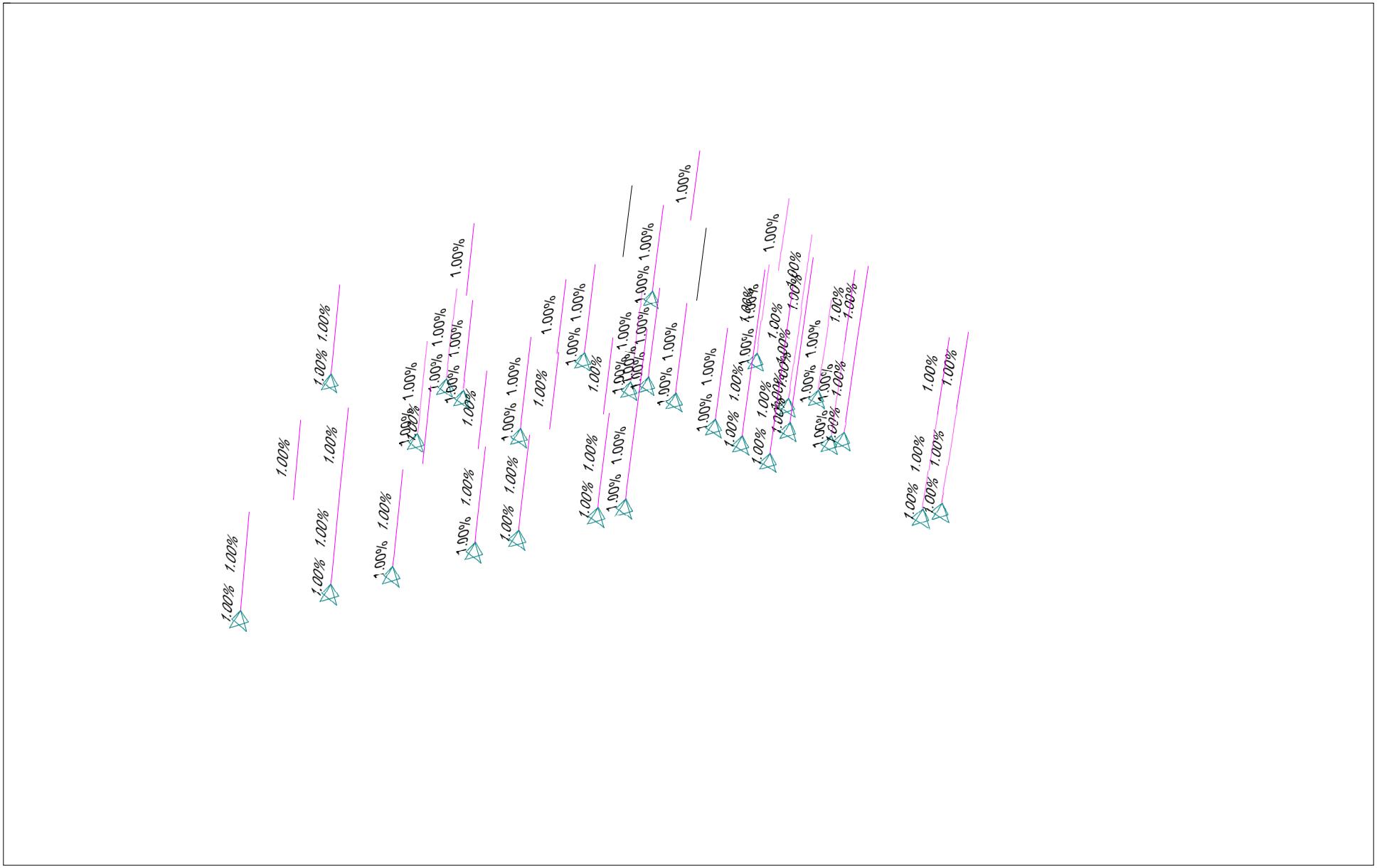
COLUMNS DESIGN



24-0609P8_v00 (051724).EDB 3-D View Rebar Percentage (ACI 318-19)

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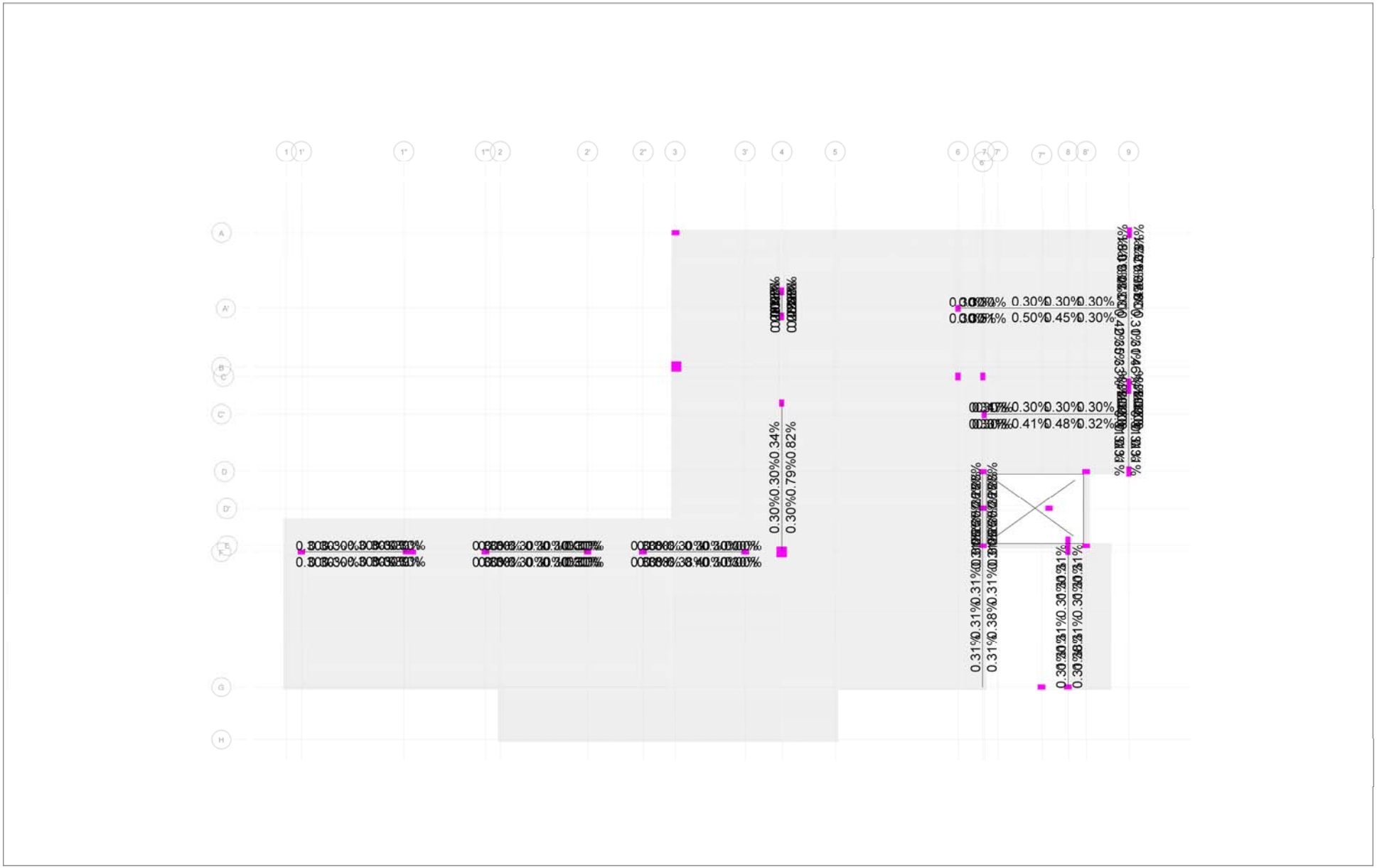
BEAM DESIGN

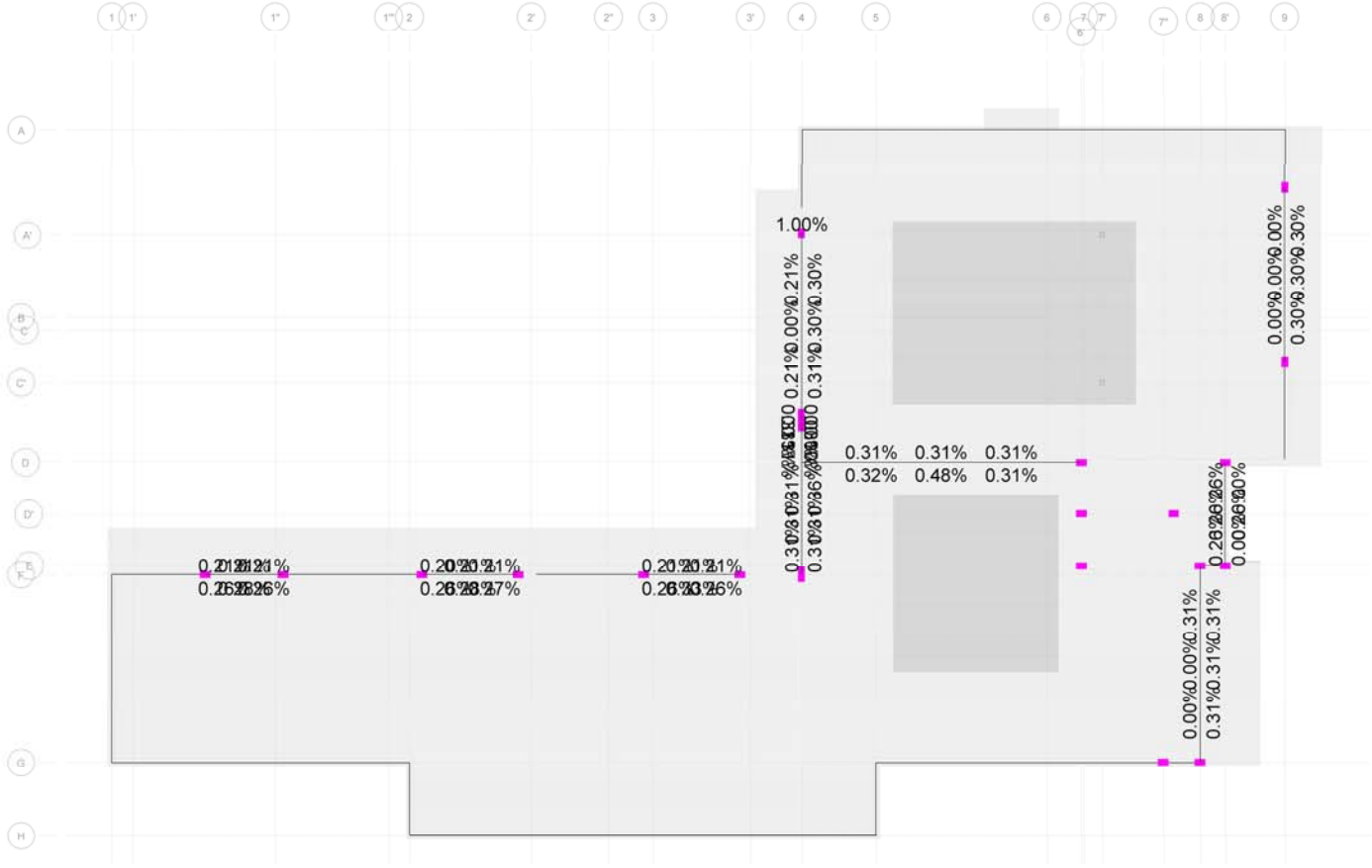
Job. No.: **Date:**

Beam Reinforcement Processing

							LONGITUDINAL BARS															STIRRUPS: SHEAR+TORSION REINF.									
							BOTTOM BARS					TOP BARS					FACE BARS															
Beam Label	Gridline Ref.	Level	Section Size b (in.)	Section Size h (in.)	L (ft.)	f'c (ksi)	As_{req} in^2	Min. No. of Bars	Final No. of Bars	Bar No.	Quant. Check	As_{req} in^2	Min No. of Bars	Final No. of Bars	Bar No.	Quant. Check	AsL_{req} in^2	Min. No. of Bars	Final No. of Bars	Bar No.	Quant. Check	B, T & F Check	Req. A_{sh} in^2/ft	Tu>Tth? Y or N	Perimeter p_h (in)	No. of Legs	Bar No.	Req. Spacing @ Ends (in. o.c.)	ACI 314 Max. Spacing (in. o.c.)	Sugg. Spacing @ Ends (in. o.c.)	Stirrup Quant.	Final Spacing @ Ends (in. o.c.)	Quant. Check
2B-1	4	2	8	24	3.5	4	0.57	2	(2)	#5	O.K.	0.57	2	(2)	#5	O.K.	0.00	0			O.K.	O.K.	0.3772	N	50.0	2	#3	7.00	10.5	6.9	(4)	6.0	O.K.
2B-2	A'	2	12	20	22	4	0.77	3	(4)	#5	O.K.	0.77	3	(4)	#5	O.K.	1.01	2	(2)	#5	O.K.	O.K.	0.3866	N	50.0	3	#3	10.24	8.5	8.5	(12)	8.0	O.K.
2B-3	F	2	8	24	12.5	4	0.57	2	(2)	#5	O.K.	0.57	2	(2)	#5	O.K.	0.00	0			O.K.	O.K.	0.1464	N	50.0	2	#3	18.03	10.5	10.5	(6)	10.0	O.K.
2B-4	4	2	8	46	19.5	4	1.61	3	(4)	#7	O.K.	1.61	3	(4)	#7	O.K.	1.55	3	(4)	#5	O.K.	O.K.	0.4005	N	94.0	2	#3	6.59	21.5	6.5	(14)	6.0	O.K.
2B-5	9	2	8	50	18	4	1.27	3	(4)	#6	O.K.	1.27	3	(4)	#6	O.K.	1.68	3	(4)	#5	O.K.	O.K.	0.3418	N	102.0	2	#3	7.72	23.5	7.7	(12)	7.0	O.K.
2B-6	8	2	8	26	18	4	0.74	2	(4)	#6	O.K.	0.74	2	(4)	#6	O.K.	0.88	2	(2)	#5	O.K.	O.K.	0.1782	N	54.0	2	#3	14.81	11.5	11.5	(9)	10.0	O.K.
2B-7	7	2	8	30	18	4	0.73	2	(4)	#6	O.K.	0.73	2	(4)	#6	O.K.	1.00	2	(2)	#5	O.K.	O.K.	0.3863	N	62.0	2	#3	6.83	13.5	6.8	(13)	6.0	O.K.
2B-8	E	2	12	12	4.2	4	0.38	2	(2)	#5	O.K.	0.38	2	(2)	#5	O.K.	0.68	2	(2)	#5	O.K.	O.K.	0.4834	Y	34.0	2	#3	5.46	4.3	4.2	(6)	4.0	O.K.
RB-1	F	R	8	32	8	4	0.79	2	(2)	#6	O.K.	0.79	2	(2)	#6	O.K.	0.00	0			O.K.	O.K.	0.0000	N	66.0			0.00		12.0		12.0	O.K.
RB-2	4	R	8	32	16	4	0.79	2	(4)	#6	O.K.	0.79	2	(4)	#6	O.K.	1.09	2	(2)	#5	O.K.	O.K.	0.1332	N	66.0	2	#3	19.82	14.5	14.5	(7)	12.0	O.K.
RB-3	4	R	8	32	18	4	0.79	2	(2)	#6	O.K.	0.79	2	(2)	#6	O.K.	0.00	0			O.K.	O.K.	0.2000	N	66.0	2	#3	13.20	14.5	13.2	(7)	12.0	O.K.
RB-4	8	R	8	48	18	4	1.21	3	(4)	#6	O.K.	1.21	3	(4)	#6	O.K.	1.62	3	(4)	#5	O.K.	O.K.	0.1819	N	98.0	2	#3	14.51	22.5	14.5	(7)	12.0	O.K.
RB-5	8'	R	8	40	9	4	1.00	3	(4)	#6	O.K.	1.00	3	(4)	#6	O.K.	0.00	0			O.K.	O.K.	0.0000	N	82.0			0.00		12.0		12.0	O.K.
RB-6	D	R	12	20	26	4	1.03	3	(4)	#6	O.K.	1.03	3	(4)	#6	O.K.	1.01	2	(2)	#5	O.K.	O.K.	0.3043	N	50.0	2	#3	8.68	8.5	8.5	(14)	8.0	O.K.
RB-7	9	R	8	26	15.5	4	0.63	2	(2)	#6	O.K.	0.63	2	(2)	#6	O.K.	0.82	2	(2)	#5	O.K.	O.K.	0.1268	N	54.0	2	#3	20.82	11.5	11.5	(8)	10.0	O.K.



24-0609P8_v00 (052324).EDB Plan View - 2nd Floor - Z = 12.5 (ft) Rebar Percentage (ACI 318-19)



24-0609P8_v00 (052324).EDB Plan View - Roof - Z = 23.6667 (ft) Rebar Percentage (ACI 318-19)

Eastern
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FOOTING DESIGN

Job. No.: **Date:**

Isolated Footing Design for Gravity Columns - ACI 318-19

Input	Value	Unit
ϕ_v	0.75	N/A
Soil All.	2500	psf
F_y	60	ksi
2-way D/C	0.95	N/A

Strength Load Combination Factors						
LRFD1	1.4	DL				
LRFD2	1.2	DL	1.6	LL		
LRFD3	1.2	DL	1.0	LL	1.6	RLL

Notes:
1. All loads are unfactored (service) loads.
2. "d" is determined based on min. punching and one-way shear effective depth.
3. Soil embed. is used for overburden soil load and is measured to the top of footing.
4. Size Effect Factor = 1 per 13.2.6.2

Footing ID	P_D (kips)	P_L (kips)	P_{RL} (kips)	Surcharge Load (psf)	Soil Embd (ft)	C1 (in)	C2 (in)	f'c (psi)	d (in) 1-Way	d (in) 2-Way	Min. Size h (in)	Min. Size B (ft) x L (ft)	No. of Bars ea. way bott.	Bar No.	Max Spacing bott. @ in. o.c. ea. way	Hooked Ends?	Final Size B&L (ft)	Dsgn Check
F4-	128.6	18.3	9.3	90	2	15.0	15.0	3000	12.05	10.41	17.0	8.7 x 8.7	(11)	#5	10.0	NO	9.0	O.K.
C9-	75.8	6.2	6.3	90	2	8.0	24.0	3000	10.20	7.52	15.0	6.4 x 6.4	(7)	#5	12.0	NO	6.5	O.K.
C'4-	74.1	13.2	4.2	90	2	8.0	12.0	2950	10.29	8.51	15.0	6.6 x 6.6	(8)	#5	11.0	NO	7.0	O.K.
F1"-	66.9	9.2	4.3	90	2	21.8	8.0	3000	9.31	7.00	14.0	6.2 x 6.2	(7)	#5	12.0	NO	6.5	O.K.
E6'-	38.4	5.1	3.1	90	2	12.0	8.0	3000	7.37	5.16	12.0	4.7 x 4.7	(5)	#5	13.0	NO	5.0	O.K.
F2"-	38.4	7.5	2.9	90	2	12.0	8.0	3000	7.49	5.31	12.0	4.8 x 4.8	(5)	#5	13.0	NO	5.0	O.K.
F3'-	38.6	6.8	3.6	90	2	12.0	8.0	3000	7.49	5.36	12.0	4.8 x 4.8	(5)	#5	13.0	NO	5.0	O.K.
B3-	25.6	13.6	0.3	90	2	15.0	15.0	3000	6.70	3.66	12.0	4.4 x 4.4	(4)	#5	16.0	NO	4.5	O.K.
E8-	34.6	1.1	2.9	90	2	8.0	33.0	3000	7.14	3.31	12.0	4.3 x 4.3	(4)	#5	16.0	NO	4.5	O.K.
F1'-	35.8	5.3	2.8	90	2	12.0	8.0	3000	7.38	4.92	12.0	4.5 x 4.5	(4)	#5	16.0	NO	4.5	O.K.
F1'"-	31.8	4.7	2.3	90	2	12.0	8.0	3000	6.94	4.46	12.0	4.3 x 4.3	(4)	#5	16.0	NO	4.5	O.K.
F2'-	33.6	5.8	2.8	90	2	12.0	8.0	3000	7.29	4.76	12.0	4.4 x 4.4	(4)	#5	16.0	NO	4.5	O.K.
A"4-	33.9	5.4	2.2	90	2	8.0	12.0	3000	7.22	4.69	12.0	4.4 x 4.4	(4)	#5	16.0	NO	4.5	O.K.
C'7-	29.7	2.7	3.0	90	2	8.0	12.0	3000	6.95	4.18	12.0	4.0 x 4.0	(4)	#5	14.0	NO	4.0	O.K.
D6'-	27.4	4.5	2.4	90	2	8.0	12.0	3000	6.71	4.03	12.0	4.0 x 4.0	(4)	#5	14.0	NO	4.0	O.K.
A9-	23.0	1.0	1.6	90	2	8.0	16.0	3000	6.15	2.85	12.0	3.5 x 3.5	(3)	#5	18.0	NO	3.5	O.K.
A'4-	19.8	2.7	1.0	90	2	8.0	12.0	3000	5.74	2.91	12.0	3.4 x 3.4	(3)	#5	18.0	NO	3.5	O.K.
A'6-	22.6	2.2	2.1	90	2	8.0	12.0	3000	6.26	3.32	12.0	3.5 x 3.5	(3)	#5	18.0	NO	3.5	O.K.
C6-	15.4	5.1	-1.2	90	2	8.0	12.0	3000	5.75	2.75	12.0	3.2 x 3.2	(3)	#5	18.0	NO	3.5	O.K.
D'6'-	17.0	4.7	0.7	90	2	12.0	8.0	3000	5.83	2.87	12.0	3.3 x 3.3	(3)	#5	18.0	NO	3.5	O.K.
C6'-	21.0	1.3	2.3	90	2	12.0	8.0	3000	6.05	3.10	12.0	3.4 x 3.4	(3)	#5	18.0	NO	3.5	O.K.
D8'-	13.4	0.9	0.9	90	2	12.0	8.0	3000	4.92	2.08	12.0	2.7 x 2.7	(3)	#5	15.0	NO	3.0	O.K.
E8'	14.1	0.5	1.2	90	2	8.0	12.0	3000	5.00	2.16	12.0	2.8 x 2.8	(3)	#5	15.0	NO	3.0	O.K.
G8'-	17.1	0.3	1.1	90	2	12.0	8.0	3000	5.54	2.48	12.0	3.0 x 3.0	(3)	#5	15.0	NO	3.0	O.K.
D9-	10.8	0.2	0.7	90	2	8.0	18.0	3000	4.51	1.48	12.0	2.4 x 2.4	(3)	#5	12.0	NO	2.5	O.K.
G7"-	17.2	0.9	1.1	90	2	12.0	8.0	3000	5.57	2.49	12.0	3.0 x 3.0	(3)	#5	15.0	NO	3.0	O.K.
A3-	4.8	1.7	0.1	90	2	12.0	8.0	3000	3.40	1.07	12.0	1.8 x 1.8	(2)	#5	18.0	NO	2.0	O.K.
D'7"-	2.7	0.3	0.3	90	2	12.0	8.0	3000	1.85	0.42	12.0	1.3 x 1.3	(2)	#5	12.0	NO	1.5	O.K.