



Your trusted partner for buying, selling, and managing property,
ensuring hassle-free service with 100% transparency.

3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai, India

hello@verified.realestate

+91 9996 12 9996

Official Property Record

Digitally Verified Record - Powered by Verified  RealEstate™



N. KANAGAVEL M.E., M.B.A., MIE., FIV.,
Chartered Engineer, Registered Structural Engineer Grade-I

CA-12, Tarangini Complex, Ambattur Industrial Estate,
(Mugappair West,) Chennai - 600 058.
Mobile : 94440 - 61295
E-mail : kanagavelchennai@gmail.com

10.04.2024

STABILITY CERTIFICATE

For the proposed construction of residential apartments of stilt + three floors @ Plot No: A-43, Hindu Colony, 5th Cross Street, Nanganallur, Chennai – 603 061, the structural design is done. I am enclosing the analysis and design calculations for critical members for reference.

The modeling and analysis is done using ETABS software and the designing part by manual calculations. The member loads are taken as per IS 875 and IS 1893 – 2016 and the designing is done based on IS 456 and SP-16.

Based on the analysis and design I certify that the structural design is **SAFE and SOUND** if the recommendations are followed during construction.


N. KANAGAVEL M.E., M.B.A., MIE., FIV
Registered Structural Engineer Grade-I
CMDA Reg.No. SE/GR-I/19/03/049
GCC Reg.No.RSE100022019
CA-12, Tarangani Complex,
Ambattur Industrial Estate
Mogappair West, Chennai-600 058

Design Specifications:

The proposed structure are to be designed for stilt + three floors and to be of framed structure to resist the seismic effect of zone III as per IS 1893 – 2016. The usage of the building is for residential purpose.

Soil Investigation:

As per AYYAN Associates geo technical report No: AY/JAN/2024/4, the foundation recommendations are:

- | | |
|----------------------------|------------------------|
| (i) type of foundation | = Isolated / combined |
| (ii) Depth of foundation | = 2.50 m |
| (ii) SBC @ 2.50 m depth | = 200kn/m ² |

Floor Heights Considered:

- | | |
|---------------------------------|---------|
| Foundation depth | = 2.50m |
| Car parking level | = 0.60m |
| Stilt and typical floors height | = 3.05m |

Analysis and Design:

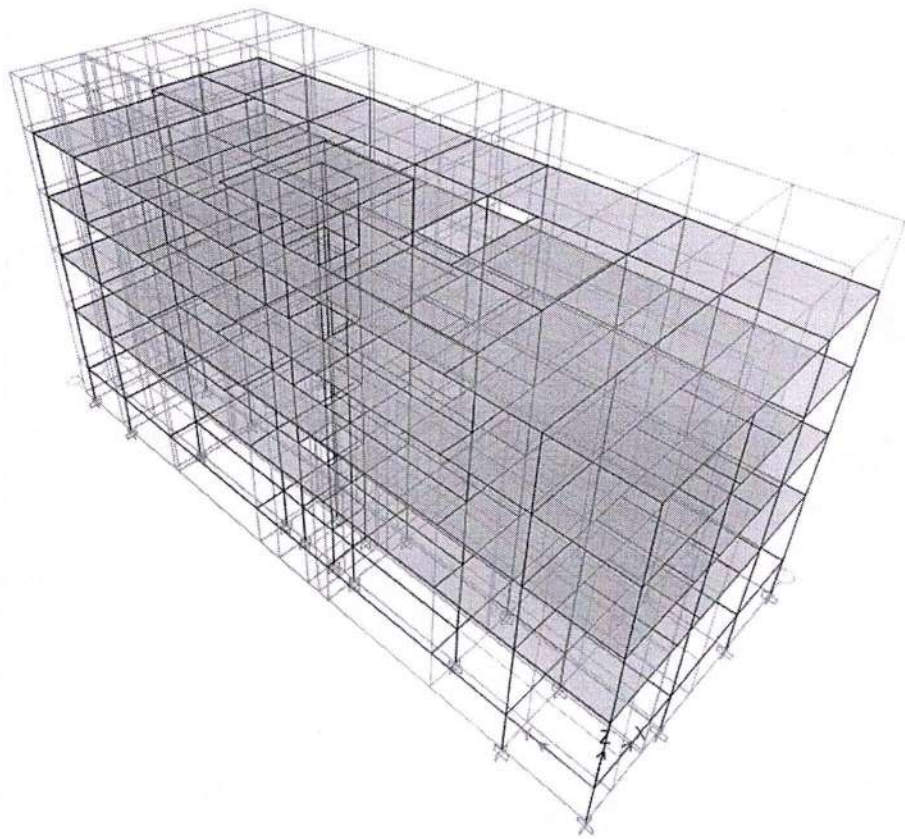
Analysis part is done using ETABS software and the designing part by manual calculations in accordance with IS 456 – 2000, IS 1893 - 2016 and SP – 16.

Materials:

The following recommendations of materials are to be used

- (i) Grade of concrete : M25 grade for all RCC members
- (ii) Grade of steel : Fe 500 for all diameter
- (iii) Potable quality of water to be used for all construction activities including curing.

ETABS[®]



User Report

A-43, Hindu Colony, Nanganallur, Chennai

Model File: stilt+3 floors, Revision 0

10-Apr-24

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 m	Master Story	Similar To	Splice Story	Color
T1	head room	2.5	No	None	No	Yellow
T1	roof	3.05	No	None	No	Yellow
T1	story3	3.05	No	story1	No	Yellow
T1	story2	3.05	No	story1	No	Gray8Dark
T1	story1	3.6	Yes	None	No	Blue
T1	plinth beam	2	No	None	No	Green

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
HYSD500	Rebar	Uniaxial	HYSD Grade 500	Red	
HYSD550	Rebar	Uniaxial	HYSD Grade 550	Magenta	
M25	Concrete	Isotropic	M25	Cyan	

2.2 Frame Sections

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

Name	Material	Shape	Color	Area mm2	J mm4	I33 mm4	I22 mm4	As2 mm2	As3 mm2
B230x300	M25	Concrete Rectangular	Cyan	69000	645952940	517500000	304175000	57500	57500
B230x380	M25	Concrete Rectangular	Red	87400	960059669.1	1051713333.3	385288333.3	72833.3	72833.3
B230x450	M25	Concrete Rectangular	Magenta	103500	1240725932.6	1746562500	456262500	86250	86250
B230x525	M25	Concrete Rectangular	16744448	120750	1543362846	2773476562.5	532306250	100625	100625
B230x600	M25	Concrete Rectangular	Green	138000	1846791340	4140000000	608350000	115000	115000
B230x675	M25	Concrete Rectangular	Green	155250	2150569054.6	5894648437.5	684393750	129375	129375
B230x750	M25	Concrete Rectangular	Red	172500	2454517027.4	8085937500	760437500	143750	143750
C230x300	M25	Concrete Rectangular	Gray8Dark	69000	645952940	517500000	304175000	57500	57500
C230x380	M25	Concrete Rectangular	Cyan	87400	960059669.1	1051713333.3	385288333.3	72833.3	72833.3
C230x450	M25	Concrete Rectangular	Magenta	103500	1240725932.6	1746562500	456262500	86250	86250
C230x525	M25	Concrete Rectangular	Yellow	120750	1543362846	2773476562.5	532306250	100625	100625
C230x600	M25	Concrete Rectangular	Cyan	138000	1846791340	4140000000	608350000	115000	115000
C300x525	M25	Concrete Rectangular	16744448	157500	3039113702.6	3617578125	1181250000	131250	131250
C300x600	M25	Concrete Rectangular	Green	180000	3707859375	5400000000	1350000000	150000	150000
C300x750	M25	Concrete Rectangular	Magenta	225000	5052628800	10546875000	1687500000	187500	187500
C380x750	M25	Concrete Rectangular	Red	285000	9363261447.9	13359375000	3429500000	237500	237500
D230x230	M25	Concrete Rectangular	Red	52900	394109408.3	233200833.3	233200833.3	44083.3	44083.3

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

S33Pos mm3	S33Neg mm3	S22Pos mm3	S22Neg mm3	Z33 mm3	Z22 mm3	R33 mm	R22 mm	CG Offset 3 mm	CG Offset 2 mm	PNA Offset 3 mm	PNA Offset 2 mm
3450000	3450000	2645000	2645000	5175000	3967500	86.6	66.4	0	0	0	0
5535333.3	5535333.3	3350333.3	3350333.3	8303000	5025500	109.7	66.4	0	0	0	0
7762500	7762500	3967500	3967500	11643750	5951250	129.9	66.4	0	0	0	0
10565625	10565625	4628750	4628750	15848437.5	6943125	151.6	66.4	0	0	0	0
13800000	13800000	5290000	5290000	20700000	7935000	173.2	66.4	0	0	0	0
17465625	17465625	5951250	5951250	26198437.5	8926875	194.9	66.4	0	0	0	0
21562500	21562500	6612500	6612500	32343750	9918750	216.5	66.4	0	0	0	0
3450000	3450000	2645000	2645000	5175000	3967500	86.6	66.4	0	0	0	0
5535333.3	5535333.3	3350333.3	3350333.3	8303000	5025500	109.7	66.4	0	0	0	0
7762500	7762500	3967500	3967500	11643750	5951250	129.9	66.4	0	0	0	0
10565625	10565625	4628750	4628750	15848437.5	6943125	151.6	66.4	0	0	0	0
13800000	13800000	5290000	5290000	20700000	7935000	173.2	66.4	0	0	0	0
13781250	13781250	7875000	7875000	20671875	11812500	151.6	86.6	0	0	0	0
18000000	18000000	9000000	9000000	27000000	13500000	173.2	86.6	0	0	0	0
28125000	28125000	11250000	11250000	42187500	16875000	216.5	86.6	0	0	0	0
35625000	35625000	18050000	18050000	53437500	27075000	216.5	109.7	0	0	0	0
2027833.3	2027833.3	2027833.3	2027833.3	3041750	3041750	66.4	66.4	0	0	0	0

2.3 Shell Sections

Table 2.3 - Area Section Property Definitions - Summary

Name	Type	Element Type	Material	Total Thickness mm	Deck Material	Deck Depth mm
Deck1	Deck	Membrane	4000Psi	162.5	A992Fy50	75
Slab1	Slab	Shell-Thin	M25	125		
Wall1	Wall	Shell-Thin	M25	230		
Wall2	Wall	Shell-Thin	M25	230		
Wall3	Wall	Shell-Thin	M25	230		
Wall4	Wall	Shell-Thin	M25	230		

2.4 Reinforcement Sizes

Table 2.4 - Reinforcing Bar Sizes

Name	Diameter mm	Area mm2
6	6	28.3
8	8	50.3
10	10	78.5
12	12	113.1
14	14	153.9
16	16	201.1
18	18	254.5
20	20	314.2
22	22	380.1
25	25	490.9
26	26	530.9
28	28	615.8
32	32	804.2
36	36	1017.9
40	40	1256.6
50	50	1963.5

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	
Floor finish	No	Super Dead	0	
Live	No	Reducible Live	0	
roof live	No	Reducible Live	0	
seismic - X	No	Seismic	0	IS 1893:2016
seismic - Y	No	Seismic	0	IS 1893:2016
sunken filling	No	Super Dead	0	
wall load	No	Super Dead	0	

3.2 Auto Seismic Loading

IS 1893:2016 Auto Seismic Load Calculation

This calculation presents the automatically generated lateral seismic loads for load pattern seismic - X according to IS 1893:2016, as calculated by ETABS.

Direction and Eccentricity

Direction = X

Structural Period

Period Calculation Method = User Specified

User Period

$$T = 0.32 \text{ sec}$$

Factors and Coefficients

Seismic Zone Factor, Z [IS Table 3]

$$Z = 0.16$$

$$R = 5$$

$$I = 1$$

Seismic Response

Spectral Acceleration Coefficient, $S_a \frac{S_a}{g} = 2.5$
/g [IS 6.4.2]

$$\frac{S_a}{g} = 2.5$$

Equivalent Lateral Forces

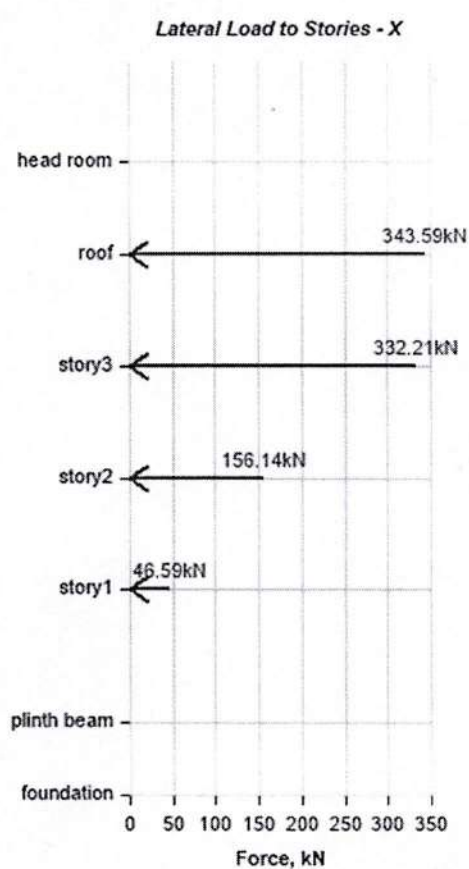
ETABS v19.0.2

Seismic Coefficient, A_h [IS 6.4.2] $A_h = \frac{Z I \frac{S_a}{g}}{2R}$

Calculated Base Shear

Direction	Period Used (sec)	W (N)	V_b (kN)
X	0.32	21963157.18	878526.29

Applied Story Forces



Story	Elevation	X-Dir	Y-Dir
	m	kN	kN
head room	15.25	0	0
roof	12.75	343.59	0
story3	9.7	332.21	0
story2	6.65	156.14	0
story1	3.6	46.59	0
plinth beam	0	0	0
foundation	-2	0	0

IS 1893:2016 Auto Seismic Load Calculation

This calculation presents the automatically generated lateral seismic loads for load pattern seismic - Y according to IS 1893:2016, as calculated by ETABS.

Direction and Eccentricity

Direction = Y

Structural Period

Period Calculation Method = User Specified

User Period

$$T = 0.2 \text{ sec}$$

Factors and Coefficients

Seismic Zone Factor, Z [IS Table 3]

$$Z = 0.16$$

$$R = 5$$

$$I = 1$$

Seismic Response

Spectral Acceleration Coefficient, $S_a \frac{S_a}{g} = 2.5$
/g [IS 6.4.2]

$$\frac{S_a}{g} = 2.5$$

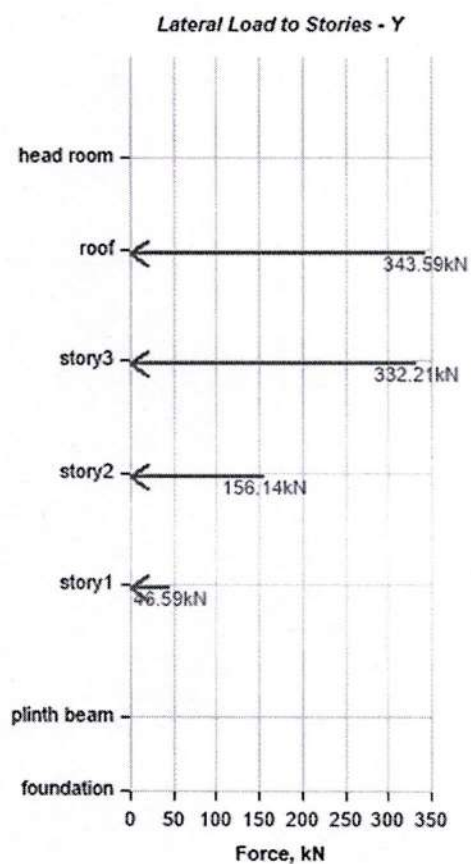
Equivalent Lateral Forces

Seismic Coefficient, A_h [IS 6.4.2] $A_h = \frac{ZI \frac{S_a}{g}}{2R}$

Calculated Base Shear

Direction	Period Used (sec)	W (N)	V _b (kN)
Y	0.2	21963157.18	878526.29

Applied Story Forces



Story	Elevation	X-Dir	Y-Dir
	m	kN	kN
head room	15.25	0	0
roof	12.75	0	343.59
story3	9.7	0	332.21
story2	6.65	0	156.14
story1	3.6	0	46.59
plinth beam	0	0	0
foundation	-2	0	0

3.3 Load Cases

Table 3.4 - Load Case Definitions - Summary

Name	Type
Dead	Linear Static
Live	Linear Static
Modal	Modal - Eigen
Floor finish	Linear Static
sunken filling	Linear Static
wall load	Linear Static
seismic - X	Linear Static
seismic - Y	Linear Static
RSX	Response Spectrum

Name	Type
RXY	Response Spectrum
roof live	Linear Static

4 Analysis Results

This chapter provides analysis results.

4.1 Story Results

Table 4.1 - Story Drifts

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
head room	Dead	LinStatic		X	0.000161	44	0	12.69	15.25
head room	Dead	LinStatic		Y	7.4E-05	42	0	17.14	15.25
head room	Live	LinStatic		X	4E-06	22	3.33	15.85	15.25
head room	Live	LinStatic		Y	5E-06	42	0	17.14	15.25
head room	Floor finish	LinStatic		X	4.6E-05	44	0	12.69	15.25
head room	Floor finish	LinStatic		Y	4.8E-05	42	0	17.14	15.25
head room	sunken filling	LinStatic		X	6E-06	11	4.62	17.14	15.25
head room	sunken filling	LinStatic		Y	3E-06	44	0	12.69	15.25
head room	wall load	LinStatic		X	0.000286	10	1.45	17.14	15.25
head room	seismic - X	LinStatic		X	0.000517	11	4.62	17.14	15.25
head room	seismic - Y	LinStatic		X	3.9E-05	29	4.62	12.69	15.25
head room	seismic - Y	LinStatic		Y	0.00023	29	4.62	12.69	15.25
head room	RSX	LinRespSpec	Max	X	0.000795	44	0	12.69	15.25
head room	RXY	LinRespSpec	Max	X	0.000128	44	0	12.69	15.25
head room	RXY	LinRespSpec	Max	Y	0.000519	44	0	12.69	15.25
head room	roof live	LinStatic		X	0.000223	12	1.45	12.69	15.25
head room	roof live	LinStatic		Y	5.5E-05	44	0	12.69	15.25
head room	(DL+LL)	Combination		X	0.000716	12	1.45	12.69	15.25
head room	09DL+1.5EQX	Combination		X	0.000486	11	4.62	17.14	15.25
head room	09DL-1.5EQX	Combination		X	0.001185	12	1.45	12.69	15.25
head room	0.9DL+1.5RSX	Combination	Max	X	0.000818	11	4.62	17.14	15.25
head room	0.9DL+1.5RSX	Combination	Max	Y	0.000234	44	0	12.69	15.25
head room	0.9DL+1.5RSX	Combination	Min	X	0.001632	44	0	12.69	15.25
head room	0.9DL-1.5RSX	Combination	Max	X	0.000818	11	4.62	17.14	15.25
head room	0.9DL-1.5RSX	Combination	Max	Y	0.000234	44	0	12.69	15.25
head room	0.9DL-1.5RSX	Combination	Min	X	0.001632	44	0	12.69	15.25
head room	09DL-1.5EQY	Combination		X	0.000497	44	0	12.69	15.25
head room	09DL-1.5EQY	Combination		Y	0.000408	29	4.62	12.69	15.25
head room	09DL+1.5EQY	Combination		X	0.000383	44	0	12.69	15.25
head room	09DL+1.5EQY	Combination		Y	0.000372	44	0	12.69	15.25
head room	0.9DL+1.5RSY	Combination	Max	X	0.000269	23	3.33	13.98	15.25
head room	0.9DL+1.5RSY	Combination	Max	Y	0.000883	44	0	12.69	15.25
head room	0.9DL+1.5RSY	Combination	Min	X	0.000632	44	0	12.69	15.25
head room	0.9DL+1.5RSY	Combination	Min	Y	0.000673	42	0	17.14	15.25
head room	0.9DL-1.5RSY	Combination	Max	X	0.000269	23	3.33	13.98	15.25
head room	0.9DL-1.5RSY	Combination	Max	Y	0.000883	44	0	12.69	15.25
head room	0.9DL-1.5RSY	Combination	Min	X	0.000632	44	0	12.69	15.25
head room	0.9DL-1.5RSY	Combination	Min	Y	0.000673	42	0	17.14	15.25
head room	1.2(DL+LL+EQX)	Combination		X	0.000264	44	0	12.69	15.25
head room	1.2(DL+LL+EQX)	Combination		Y	0.000228	42	0	17.14	15.25
head room	1.2(DL+LL-EQX)	Combination		X	0.001455	12	1.45	12.69	15.25
head room	1.2(DL+LL+RSX)	Combination	Max	X	0.000294	11	4.62	17.14	15.25
head room	1.2(DL+LL+RSX)	Combination	Max	Y	0.000315	44	0	12.69	15.25

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
head room	1.2(DL+LL+RSX)	Combination	Min	X	0.001812	44	0	12.69	15.25
head room	1.2(DL+LL-RSX)	Combination	Max	X	0.000294	11	4.62	17.14	15.25
head room	1.2(DL+LL-RSX)	Combination	Max	Y	0.000315	44	0	12.69	15.25
head room	1.2(DL+LL-RSX)	Combination	Min	X	0.001812	44	0	12.69	15.25
head room	1.2(DL+LL+EQY)	Combination		X	0.000813	12	1.45	12.69	15.25
head room	1.2(DL+LL+EQY)	Combination		Y	0.000425	44	0	12.69	15.25
head room	1.2(DL+LL-EQY)	Combination		X	0.000904	12	1.45	12.69	15.25
head room	1.2(DL+LL-EQY)	Combination		Y	0.00035	29	4.62	12.69	15.25
head room	1.2(DL+LL+RSY)	Combination	Max	X	0.000706	12	1.45	12.69	15.25
head room	1.2(DL+LL+RSY)	Combination	Max	Y	0.000834	44	0	12.69	15.25
head room	1.2(DL+LL+RSY)	Combination	Min	X	0.001012	44	0	12.69	15.25
head room	1.2(DL+LL+RSY)	Combination	Min	Y	0.00055	11	4.62	17.14	15.25
head room	1.2(DL+LL-RSY)	Combination	Max	X	0.000706	12	1.45	12.69	15.25
head room	1.2(DL+LL-RSY)	Combination	Max	Y	0.000834	44	0	12.69	15.25
head room	1.2(DL+LL-RSY)	Combination	Min	X	0.001012	44	0	12.69	15.25
head room	1.2(DL+LL-RSY)	Combination	Min	Y	0.00055	11	4.62	17.14	15.25
head room	1.5(DL+EQX)	Combination		X	0.000293	11	4.62	17.14	15.25
head room	1.5(DL+EQX)	Combination		Y	0.000198	42	0	17.14	15.25
head room	1.5(DL+EQY)	Combination		X	0.000677	44	0	12.69	15.25
head room	1.5(DL+EQY)	Combination		Y	0.000442	44	0	12.69	15.25
head room	1.5(DL+RSX)	Combination	Max	X	0.000625	11	4.62	17.14	15.25
head room	1.5(DL+RSX)	Combination	Max	Y	0.000304	44	0	12.69	15.25
head room	1.5(DL+RSX)	Combination	Min	X	0.001925	44	0	12.69	15.25
head room	1.5(DL+RSY)	Combination	Max	X	0.000542	12	1.45	12.69	15.25
head room	1.5(DL+RSY)	Combination	Max	Y	0.000953	44	0	12.69	15.25
head room	1.5(DL+RSY)	Combination	Min	X	0.000925	44	0	12.69	15.25
head room	1.5(DL+RSY)	Combination	Min	Y	0.000697	29	4.62	12.69	15.25
head room	1.5(DL-EQX)	Combination		X	0.001478	12	1.45	12.69	15.25
head room	1.5(DL-EQY)	Combination		X	0.00079	44	0	12.69	15.25
head room	1.5(DL-EQY)	Combination		Y	0.00045	29	4.62	12.69	15.25
head room	1.5(DL-RSX)	Combination	Max	X	0.000625	11	4.62	17.14	15.25
head room	1.5(DL-RSX)	Combination	Max	Y	0.000304	44	0	12.69	15.25
head room	1.5(DL-RSX)	Combination	Min	X	0.001925	44	0	12.69	15.25
head room	1.5(DL-RSY)	Combination	Max	X	0.000542	12	1.45	12.69	15.25
head room	1.5(DL-RSY)	Combination	Max	Y	0.000953	44	0	12.69	15.25
head room	1.5(DL-RSY)	Combination	Min	X	0.000925	44	0	12.69	15.25
head room	1.5(DL-RSY)	Combination	Min	Y	0.000697	29	4.62	12.69	15.25
head room	DL+0.8LL+0.8EQX	Combination		X	0.000273	44	0	12.69	15.25
head room	DL+0.8LL+0.8EQX	Combination		Y	0.000175	42	0	17.14	15.25
head room	DL+0.8LL+0.8EQY	Combination		X	0.00064	12	1.45	12.69	15.25
head room	DL+0.8LL+0.8EQY	Combination		Y	0.000307	44	0	12.69	15.25
head room	DL+0.8LL+0.8RSX	Combination		X	0.00064	12	1.45	12.69	15.25
head room	DL+0.8LL+0.8RSX	Combination		Y	0.000307	44	0	12.69	15.25
head room	DL+0.8LL-0.8EQX	Combination		X	0.001068	12	1.45	12.69	15.25
head room	DL+0.8LL-0.8EQY	Combination		X	0.000701	12	1.45	12.69	15.25
head room	DL+0.8LL-0.8EQY	Combination		Y	0.000247	29	4.62	12.69	15.25
head room	DL+0.8LL-0.8RSX	Combination	Max	X	0.000132	11	4.62	17.14	15.25
head room	DL+0.8LL-0.8RSX	Combination	Max	Y	0.000233	44	0	12.69	15.25
head room	DL+0.8LL-0.8RSX	Combination	Min	X	0.001306	44	0	12.69	15.25
head room	DL+0.8LL+0.8RSY	Combination	Max	X	0.000568	12	1.45	12.69	15.25
head room	DL+0.8LL+0.8RSY	Combination	Max	Y	0.00058	44	0	12.69	15.25
head room	DL+0.8LL+0.8RSY	Combination	Min	X	0.000773	44	0	12.69	15.25
head room	DL+0.8LL+0.8RSY	Combination	Min	Y	0.00038	11	4.62	17.14	15.25
head room	DL+0.8LL-0.8RSY	Combination	Max	X	0.000568	12	1.45	12.69	15.25

10-Apr-24

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
head room	DL+0.8LL-0.8RSY	Combination	Max	Y	0.00058	44	0	12.69	15.25
head room	DL+0.8LL-0.8RSY	Combination	Min	X	0.000773	44	0	12.69	15.25
head room	DL+0.8LL-0.8RSY	Combination	Min	Y	0.00038	11	4.62	17.14	15.25
head room	DL+EQX	Combination		X	0.000196	11	4.62	17.14	15.25
head room	DL+EQX	Combination		Y	0.000132	42	0	17.14	15.25
head room	DL+EQY	Combination		X	0.000451	44	0	12.69	15.25
head room	DL+EQY	Combination		Y	0.000295	44	0	12.69	15.25
head room	DL+RSX	Combination	Max	X	0.000417	11	4.62	17.14	15.25
head room	DL+RSX	Combination	Max	Y	0.000203	44	0	12.69	15.25
head room	DL+RSX	Combination	Min	X	0.001284	44	0	12.69	15.25
head room	DL+RSY	Combination	Max	X	0.000361	12	1.45	12.69	15.25
head room	DL+RSY	Combination	Max	Y	0.000635	44	0	12.69	15.25
head room	DL+RSY	Combination	Min	X	0.000617	44	0	12.69	15.25
head room	DL+RSY	Combination	Min	Y	0.000465	29	4.62	12.69	15.25
head room	DL-EQX	Combination		X	0.000985	12	1.45	12.69	15.25
head room	DL-EQY	Combination		X	0.000527	44	0	12.69	15.25
head room	DL-EQY	Combination		Y	0.0003	29	4.62	12.69	15.25
head room	DL-RSX	Combination	Max	X	0.000417	11	4.62	17.14	15.25
head room	DL-RSX	Combination	Max	Y	0.000203	44	0	12.69	15.25
head room	DL-RSX	Combination	Min	X	0.001284	44	0	12.69	15.25
head room	DL-RSY	Combination	Max	X	0.000361	12	1.45	12.69	15.25
head room	DL-RSY	Combination	Max	Y	0.000635	44	0	12.69	15.25
head room	DL-RSY	Combination	Min	X	0.000617	44	0	12.69	15.25
head room	DL-RSY	Combination	Min	Y	0.000465	29	4.62	12.69	15.25
head room	1.5(DL+LL)	Combination		X	0.001074	12	1.45	12.69	15.25
head room	ultimate envelope	Combination	Max	X	0.000818	11	4.62	17.14	15.25
head room	ultimate envelope	Combination	Max	Y	0.000953	44	0	12.69	15.25
head room	ultimate envelope	Combination	Min	X	0.001925	44	0	12.69	15.25
head room	ultimate envelope	Combination	Min	Y	0.000697	29	4.62	12.69	15.25
head room	seismic weight	Combination		X	0.00049	44	0	12.69	15.25
roof	Dead	LinStatic		X	6.1E-05	37	13.21	3.58	12.75
roof	Dead	LinStatic		Y	5.2E-05	24	13.21	31.91	12.75
roof	Live	LinStatic		X	1.4E-05	36	13.21	0	12.75
roof	Live	LinStatic		Y	1E-05	24	13.21	31.91	12.75
roof	Floor finish	LinStatic		X	2.6E-05	6	0	30.99	12.75
roof	Floor finish	LinStatic		Y	2.7E-05	24	13.21	31.91	12.75
roof	sunken filling	LinStatic		X	5E-06	5	4.62	30.99	12.75
roof	sunken filling	LinStatic		Y	4E-06	4	6.64	31.91	12.75
roof	wall load	LinStatic		X	0.000149	21	1.45	13.98	12.75
roof	wall load	LinStatic		Y	3E-05	24	13.21	31.91	12.75
roof	seismic - X	LinStatic		X	0.000971	6	0	30.99	12.75
roof	seismic - Y	LinStatic		Y	0.000968	8	0	27.53	12.75
roof	RSX	LinRespSpec	Max	X	0.001093	6	0	30.99	12.75
roof	RXY	LinRespSpec	Max	X	0.000491	17	0	0	12.75
roof	RXY	LinRespSpec	Max	Y	0.000884	8	0	27.53	12.75
roof	roof live	LinStatic		X	2.6E-05	21	1.45	13.98	12.75
roof	roof live	LinStatic		Y	1.3E-05	4	6.64	31.91	12.75
roof	(DL+LL)	Combination		X	0.000241	12	1.45	12.69	12.75
roof	(DL+LL)	Combination		Y	0.000131	24	13.21	31.91	12.75
roof	09DL+1.5EQX	Combination		X	0.001395	6	0	30.99	12.75
roof	09DL+1.5EQX	Combination		X	0.001627	21	1.45	13.98	12.75
roof	0.9DL+1.5RSX	Combination	Max	X	0.001577	6	0	30.99	12.75
roof	0.9DL+1.5RSX	Combination	Min	X	0.001771	10	1.45	17.14	12.75
roof	0.9DL+1.5RSX	Combination	Min	Y	0.000235	24	13.21	31.91	12.75

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
roof	0.9DL-1.5RSX	Combination	Max	X	0.001577	6	0	30.99	12.75
roof	0.9DL-1.5RSX	Combination	Min	X	0.001771	10	1.45	17.14	12.75
roof	0.9DL-1.5RSX	Combination	Min	Y	0.000235	24	13.21	31.91	12.75
roof	0.9DL-1.5EQY	Combination		Y	0.001483	6	0	30.99	12.75
roof	0.9DL+1.5EQY	Combination		Y	0.00142	8	0	27.53	12.75
roof	0.9DL+1.5RSY	Combination	Max	X	0.000635	4	6.64	31.91	12.75
roof	0.9DL+1.5RSY	Combination	Max	Y	0.001294	8	0	27.53	12.75
roof	0.9DL+1.5RSY	Combination	Min	X	0.000907	36	13.21	0	12.75
roof	0.9DL+1.5RSY	Combination	Min	Y	0.001357	6	0	30.99	12.75
roof	0.9DL+1.5RSY	Combination	Max	X	0.000635	4	6.64	31.91	12.75
roof	0.9DL+1.5RSY	Combination	Max	Y	0.001294	8	0	27.53	12.75
roof	0.9DL+1.5RSY	Combination	Min	X	0.000907	36	13.21	0	12.75
roof	0.9DL+1.5RSY	Combination	Min	Y	0.001357	6	0	30.99	12.75
roof	1.2(DL+LL+EQX)	Combination		X	0.001077	6	0	30.99	12.75
roof	1.2(DL+LL+EQX)	Combination		Y	0.000167	24	13.21	31.91	12.75
roof	1.2(DL+LL+EQX)	Combination		X	0.001441	21	1.45	13.98	12.75
roof	1.2(DL+LL+RSX)	Combination	Max	X	0.001223	6	0	30.99	12.75
roof	1.2(DL+LL+RSX)	Combination	Min	X	0.001551	21	1.45	13.98	12.75
roof	1.2(DL+LL+RSX)	Combination	Min	Y	0.000267	24	13.21	31.91	12.75
roof	1.2(DL+LL+RSX)	Combination	Max	X	0.001223	6	0	30.99	12.75
roof	1.2(DL+LL+RSX)	Combination	Min	X	0.001551	21	1.45	13.98	12.75
roof	1.2(DL+LL+RSX)	Combination	Min	Y	0.000267	24	13.21	31.91	12.75
roof	1.2(DL+LL+EQY)	Combination		X	0.000457	36	13.21	0	12.75
roof	1.2(DL+LL+EQY)	Combination		Y	0.001109	8	0	27.53	12.75
roof	1.2(DL+LL+EQY)	Combination		X	0.00029	24	13.21	31.91	12.75
roof	1.2(DL+LL+EQY)	Combination		Y	0.001223	40	1.45	23.65	12.75
roof	1.2(DL+LL+RSY)	Combination	Max	X	0.000463	4	6.64	31.91	12.75
roof	1.2(DL+LL+RSY)	Combination	Max	Y	0.001009	17	0	0	12.75
roof	1.2(DL+LL+RSY)	Combination	Min	X	0.000856	36	13.21	0	12.75
roof	1.2(DL+LL+RSY)	Combination	Min	Y	0.001113	6	0	30.99	12.75
roof	1.2(DL+LL+RSY)	Combination	Max	X	0.000463	4	6.64	31.91	12.75
roof	1.2(DL+LL+RSY)	Combination	Max	Y	0.001009	17	0	0	12.75
roof	1.2(DL+LL+RSY)	Combination	Min	X	0.000856	36	13.21	0	12.75
roof	1.2(DL+LL+RSY)	Combination	Min	Y	0.001113	6	0	30.99	12.75
roof	1.5(DL+EQX)	Combination		X	0.001354	6	0	30.99	12.75
roof	1.5(DL+EQY)	Combination		X	0.000523	36	13.21	0	12.75
roof	1.5(DL+EQY)	Combination		Y	0.001399	8	0	27.53	12.75
roof	1.5(DL+RSX)	Combination	Max	X	0.001536	6	0	30.99	12.75
roof	1.5(DL+RSX)	Combination	Min	X	0.001886	21	1.45	13.98	12.75
roof	1.5(DL+RSX)	Combination	Min	Y	0.000299	24	13.21	31.91	12.75
roof	1.5(DL+RSY)	Combination	Max	X	0.000589	4	6.64	31.91	12.75
roof	1.5(DL+RSY)	Combination	Max	Y	0.001273	8	0	27.53	12.75
roof	1.5(DL+RSY)	Combination	Min	X	0.001021	36	13.21	0	12.75
roof	1.5(DL+RSY)	Combination	Min	Y	0.001378	6	0	30.99	12.75
roof	1.5(DL+EQX)	Combination		X	0.001749	12	1.45	12.69	12.75
roof	1.5(DL+EQY)	Combination		X	0.00035	24	13.21	31.91	12.75
roof	1.5(DL+EQY)	Combination		Y	0.00151	40	1.45	23.65	12.75
roof	1.5(DL+RSX)	Combination	Max	X	0.001536	6	0	30.99	12.75
roof	1.5(DL+RSX)	Combination	Min	X	0.001886	21	1.45	13.98	12.75
roof	1.5(DL+RSX)	Combination	Min	Y	0.000299	24	13.21	31.91	12.75
roof	1.5(DL+RSY)	Combination	Max	X	0.000589	4	6.64	31.91	12.75
roof	1.5(DL+RSY)	Combination	Max	Y	0.001273	8	0	27.53	12.75
roof	1.5(DL+RSY)	Combination	Min	X	0.001021	36	13.21	0	12.75
roof	1.5(DL+RSY)	Combination	Min	Y	0.001378	6	0	30.99	12.75

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
roof	DL+0.8LL+0.8EQX	Combination		X	0.000705	6	0	30.99	12.75
roof	DL+0.8LL+0.8EQX	Combination		Y	0.000133	24	13.21	31.91	12.75
roof	DL+0.8LL+0.8EQY	Combination		X	0.000343	36	13.21	0	12.75
roof	DL+0.8LL+0.8EQY	Combination		Y	0.000733	8	0	27.53	12.75
roof	DL+0.8LL+0.8RSX	Combination		X	0.000343	36	13.21	0	12.75
roof	DL+0.8LL+0.8RSX	Combination		Y	0.000733	8	0	27.53	12.75
roof	DL+0.8LL-0.8EQX	Combination		X	0.001002	12	1.45	12.69	12.75
roof	DL+0.8LL-0.8EQY	Combination		X	0.000215	21	1.45	13.98	12.75
roof	DL+0.8LL-0.8EQY	Combination		Y	0.000826	40	1.45	23.65	12.75
roof	DL+0.8LL-0.8RSX	Combination	Max	X	0.000802	6	0	30.99	12.75
roof	DL+0.8LL-0.8RSX	Combination	Min	X	0.001074	21	1.45	13.98	12.75
roof	DL+0.8LL-0.8RSX	Combination	Min	Y	0.000199	24	13.21	31.91	12.75
roof	DL+0.8LL+0.8RSY	Combination	Max	X	0.000293	4	6.64	31.91	12.75
roof	DL+0.8LL+0.8RSY	Combination	Max	Y	0.000666	17	0	0	12.75
roof	DL+0.8LL+0.8RSY	Combination	Min	X	0.000609	36	13.21	0	12.75
roof	DL+0.8LL+0.8RSY	Combination	Min	Y	0.000749	6	0	30.99	12.75
roof	DL+0.8LL-0.8RSY	Combination	Max	X	0.000293	4	6.64	31.91	12.75
roof	DL+0.8LL-0.8RSY	Combination	Max	Y	0.000666	17	0	0	12.75
roof	DL+0.8LL-0.8RSY	Combination	Min	X	0.000609	36	13.21	0	12.75
roof	DL+0.8LL-0.8RSY	Combination	Min	Y	0.000749	6	0	30.99	12.75
roof	DL+EQX	Combination		X	0.000903	6	0	30.99	12.75
roof	DL+EQY	Combination		X	0.000349	36	13.21	0	12.75
roof	DL+EQY	Combination		Y	0.000933	8	0	27.53	12.75
roof	DL+RSX	Combination	Max	X	0.001024	6	0	30.99	12.75
roof	DL+RSX	Combination	Min	X	0.001258	21	1.45	13.98	12.75
roof	DL+RSX	Combination	Min	Y	0.000199	24	13.21	31.91	12.75
roof	DL+RSY	Combination	Max	X	0.000393	4	6.64	31.91	12.75
roof	DL+RSY	Combination	Max	Y	0.000849	8	0	27.53	12.75
roof	DL+RSY	Combination	Min	X	0.000681	36	13.21	0	12.75
roof	DL+RSY	Combination	Min	Y	0.000919	6	0	30.99	12.75
roof	DL-EQX	Combination		X	0.001166	12	1.45	12.69	12.75
roof	DL-EQY	Combination		X	0.000234	24	13.21	31.91	12.75
roof	DL-EQY	Combination		Y	0.001007	40	1.45	23.65	12.75
roof	DL-RSX	Combination	Max	X	0.001024	6	0	30.99	12.75
roof	DL-RSX	Combination	Min	X	0.001258	21	1.45	13.98	12.75
roof	DL-RSX	Combination	Min	Y	0.000199	24	13.21	31.91	12.75
roof	DL-RSY	Combination	Max	X	0.000393	4	6.64	31.91	12.75
roof	DL-RSY	Combination	Max	Y	0.000849	8	0	27.53	12.75
roof	DL-RSY	Combination	Min	X	0.000681	36	13.21	0	12.75
roof	DL-RSY	Combination	Min	Y	0.000919	6	0	30.99	12.75
roof	1.5(DL+LL)	Combination		X	0.000361	12	1.45	12.69	12.75
roof	1.5(DL+LL)	Combination		Y	0.000196	24	13.21	31.91	12.75
roof	ultimate envelope	Combination	Max	X	0.001577	6	0	30.99	12.75
roof	ultimate envelope	Combination	Max	Y	0.00142	8	0	27.53	12.75
roof	ultimate envelope	Combination	Min	X	0.001886	21	1.45	13.98	12.75
roof	ultimate envelope	Combination	Min	Y	0.00151	40	1.45	23.65	12.75
roof	seismic weight	Combination		X	0.000208	12	1.45	12.69	12.75
roof	seismic weight	Combination		Y	0.00011	24	13.21	31.91	12.75
story3	Dead	LinStatic		X	7E-05	17	0	0	9.7
story3	Dead	LinStatic		Y	4.3E-05	36	13.21	0	9.7
story3	Live	LinStatic		X	2.3E-05	36	13.21	0	9.7
story3	Live	LinStatic		Y	1.9E-05	24	13.21	31.91	9.7
story3	Floor finish	LinStatic		Y	2.5E-05	36	13.21	0	9.7
story3	sunken filling	LinStatic		X	7E-06	5	4.62	30.99	9.7

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
story3	sunken filling	LinStatic		Y	7E-06	35	9.43	0	9.7
story3	wall load	LinStatic		X	0.000127	36	13.21	0	9.7
story3	wall load	LinStatic		Y	3.4E-05	24	13.21	31.91	9.7
story3	seismic - X	LinStatic		X	0.00165	24	13.21	31.91	9.7
story3	seismic - Y	LinStatic		Y	0.001668	17	0	0	9.7
story3	RSX	LinRespSpec	Max	X	0.001947	24	13.21	31.91	9.7
story3	RXY	LinRespSpec	Max	X	0.000897	36	13.21	0	9.7
story3	RXY	LinRespSpec	Max	Y	0.00158	17	0	0	9.7
story3	roof live	LinStatic		X	1.5E-05	17	0	0	9.7
story3	(DL+LL)	Combination		X	0.000247	17	0	0	9.7
story3	(DL+LL)	Combination		Y	0.000112	25	13.21	28.26	9.7
story3	0.9DL+1.5EQX	Combination		X	0.002403	24	13.21	31.91	9.7
story3	0.9DL-1.5EQX	Combination		X	0.002547	25	13.21	28.26	9.7
story3	0.9DL+1.5RSX	Combination	Max	X	0.00285	24	13.21	31.91	9.7
story3	0.9DL+1.5RSX	Combination	Min	X	0.002992	24	13.21	31.91	9.7
story3	0.9DL-1.5RSX	Combination	Max	X	0.00285	24	13.21	31.91	9.7
story3	0.9DL-1.5RSX	Combination	Min	X	0.002992	24	13.21	31.91	9.7
story3	0.9DL-1.5EQY	Combination		Y	0.002533	17	0	0	9.7
story3	0.9DL+1.5EQY	Combination		Y	0.00247	17	0	0	9.7
story3	0.9DL+1.5RSY	Combination	Max	X	0.001223	24	13.21	31.91	9.7
story3	0.9DL+1.5RSY	Combination	Max	Y	0.002339	17	0	0	9.7
story3	0.9DL+1.5RSY	Combination	Min	X	0.001533	35	9.43	0	9.7
story3	0.9DL+1.5RSY	Combination	Min	Y	0.002402	17	0	0	9.7
story3	0.9DL-1.5RSY	Combination	Max	X	0.001223	24	13.21	31.91	9.7
story3	0.9DL-1.5RSY	Combination	Max	Y	0.002339	17	0	0	9.7
story3	0.9DL-1.5RSY	Combination	Min	X	0.001533	35	9.43	0	9.7
story3	0.9DL-1.5RSY	Combination	Min	Y	0.002402	17	0	0	9.7
story3	1.2(DL+LL+EQX)	Combination		X	0.001874	24	13.21	31.91	9.7
story3	1.2(DL+LL-EQX)	Combination		X	0.00213	35	9.43	0	9.7
story3	1.2(DL+LL+RSX)	Combination	Max	X	0.002231	24	13.21	31.91	9.7
story3	1.2(DL+LL+RSX)	Combination	Min	X	0.002442	24	13.21	31.91	9.7
story3	1.2(DL+LL+RSX)	Combination	Min	Y	0.000368	37	13.21	3.58	9.7
story3	1.2(DL+LL-RSX)	Combination	Max	X	0.002231	24	13.21	31.91	9.7
story3	1.2(DL+LL-RSX)	Combination	Min	X	0.002442	24	13.21	31.91	9.7
story3	1.2(DL+LL-RSX)	Combination	Min	Y	0.000368	37	13.21	3.58	9.7
story3	1.2(DL+LL+EQY)	Combination		X	0.000593	17	0	0	9.7
story3	1.2(DL+LL+EQY)	Combination		Y	0.001951	6	0	30.99	9.7
story3	1.2(DL+LL-EQY)	Combination		X	0.0004	3	9.43	31.91	9.7
story3	1.2(DL+LL-EQY)	Combination		Y	0.002052	17	0	0	9.7
story3	1.2(DL+LL+RSY)	Combination	Max	X	0.00093	24	13.21	31.91	9.7
story3	1.2(DL+LL+RSY)	Combination	Max	Y	0.001847	6	0	30.99	9.7
story3	1.2(DL+LL+RSY)	Combination	Min	X	0.001371	17	0	0	9.7
story3	1.2(DL+LL+RSY)	Combination	Min	Y	0.001947	17	0	0	9.7
story3	1.2(DL+LL-RSY)	Combination	Max	X	0.00093	24	13.21	31.91	9.7
story3	1.2(DL+LL-RSY)	Combination	Max	Y	0.001847	6	0	30.99	9.7
story3	1.2(DL+LL-RSY)	Combination	Min	X	0.001371	17	0	0	9.7
story3	1.2(DL+LL-RSY)	Combination	Min	Y	0.001947	17	0	0	9.7
story3	1.5(DL+EQX)	Combination		X	0.002355	24	13.21	31.91	9.7
story3	1.5(DL+EQY)	Combination		Y	0.002449	17	0	0	9.7
story3	1.5(DL+RSX)	Combination	Max	X	0.002802	24	13.21	31.91	9.7
story3	1.5(DL+RSX)	Combination	Min	X	0.00304	24	13.21	31.91	9.7
story3	1.5(DL+RSX)	Combination	Min	Y	0.00043	37	13.21	3.58	9.7
story3	1.5(DL+RSY)	Combination	Max	X	0.001176	4	6.64	31.91	9.7
story3	1.5(DL+RSY)	Combination	Max	Y	0.002318	14	0	3.58	9.7

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
story3	1.5(DL+RSY)	Combination	Min	X	0.001658	17	0	0	9.7
story3	1.5(DL+RSY)	Combination	Min	Y	0.002423	17	0	0	9.7
story3	1.5(DL-EQX)	Combination		X	0.00262	31	13.21	17.14	9.7
story3	1.5(DL-EQY)	Combination		Y	0.002554	17	0	0	9.7
story3	1.5(DL-RSX)	Combination	Max	X	0.002802	24	13.21	31.91	9.7
story3	1.5(DL-RSX)	Combination	Min	X	0.00304	24	13.21	31.91	9.7
story3	1.5(DL-RSX)	Combination	Min	Y	0.00043	37	13.21	3.58	9.7
story3	1.5(DL-RSY)	Combination	Max	X	0.001176	4	6.64	31.91	9.7
story3	1.5(DL-RSY)	Combination	Max	Y	0.002318	14	0	3.58	9.7
story3	1.5(DL-RSY)	Combination	Min	X	0.001658	17	0	0	9.7
story3	1.5(DL-RSY)	Combination	Min	Y	0.002423	17	0	0	9.7
story3	DL+0.8LL+0.8EQX	Combination		X	0.001233	24	13.21	31.91	9.7
story3	DL+0.8LL+0.8EQY	Combination		X	0.000437	17	0	0	9.7
story3	DL+0.8LL+0.8EQY	Combination		Y	0.001294	6	0	30.99	9.7
story3	DL+0.8LL+0.8RSX	Combination		X	0.000437	17	0	0	9.7
story3	DL+0.8LL+0.8RSX	Combination		Y	0.001294	6	0	30.99	9.7
story3	DL+0.8LL-0.8EQX	Combination		X	0.001462	17	0	0	9.7
story3	DL+0.8LL-0.8EQY	Combination		X	0.000283	3	9.43	31.91	9.7
story3	DL+0.8LL-0.8EQY	Combination		Y	0.001375	17	0	0	9.7
story3	DL+0.8LL-0.8RSX	Combination	Max	X	0.001472	24	13.21	31.91	9.7
story3	DL+0.8LL-0.8RSX	Combination	Min	X	0.001644	24	13.21	31.91	9.7
story3	DL+0.8LL-0.8RSX	Combination	Min	Y	0.000263	37	13.21	3.58	9.7
story3	DL+0.8LL+0.8RSY	Combination	Max	X	0.000604	4	6.64	31.91	9.7
story3	DL+0.8LL+0.8RSY	Combination	Max	Y	0.001225	6	0	30.99	9.7
story3	DL+0.8LL+0.8RSY	Combination	Min	X	0.000956	17	0	0	9.7
story3	DL+0.8LL+0.8RSY	Combination	Min	Y	0.001305	17	0	0	9.7
story3	DL+0.8LL-0.8RSY	Combination	Max	X	0.000604	4	6.64	31.91	9.7
story3	DL+0.8LL-0.8RSY	Combination	Max	Y	0.001225	6	0	30.99	9.7
story3	DL+0.8LL-0.8RSY	Combination	Min	X	0.000956	17	0	0	9.7
story3	DL+0.8LL-0.8RSY	Combination	Min	Y	0.001305	17	0	0	9.7
story3	DL+EQX	Combination		X	0.00157	24	13.21	31.91	9.7
story3	DL+EQY	Combination		Y	0.001633	17	0	0	9.7
story3	DL+RSX	Combination	Max	X	0.001868	24	13.21	31.91	9.7
story3	DL+RSX	Combination	Min	X	0.002027	24	13.21	31.91	9.7
story3	DL+RSX	Combination	Min	Y	0.000287	37	13.21	3.58	9.7
story3	DL+RSY	Combination	Max	X	0.000784	4	6.64	31.91	9.7
story3	DL+RSY	Combination	Max	Y	0.001546	14	0	3.58	9.7
story3	DL+RSY	Combination	Min	X	0.001106	17	0	0	9.7
story3	DL+RSY	Combination	Min	Y	0.001615	17	0	0	9.7
story3	DL-EQX	Combination		X	0.001746	31	13.21	17.14	9.7
story3	DL-EQY	Combination		Y	0.001703	17	0	0	9.7
story3	DL-RSX	Combination	Max	X	0.001868	24	13.21	31.91	9.7
story3	DL-RSX	Combination	Min	X	0.002027	24	13.21	31.91	9.7
story3	DL-RSX	Combination	Min	Y	0.000287	37	13.21	3.58	9.7
story3	DL-RSY	Combination	Max	X	0.000784	4	6.64	31.91	9.7
story3	DL-RSY	Combination	Max	Y	0.001546	14	0	3.58	9.7
story3	DL-RSY	Combination	Min	X	0.001106	17	0	0	9.7
story3	DL-RSY	Combination	Min	Y	0.001615	17	0	0	9.7
story3	1.5(DL+LL)	Combination		X	0.00037	17	0	0	9.7
story3	1.5(DL+LL)	Combination		Y	0.000167	25	13.21	28.26	9.7
story3	ultimate envelope	Combination	Max	X	0.00285	24	13.21	31.91	9.7
story3	ultimate envelope	Combination	Max	Y	0.00247	17	0	0	9.7
story3	ultimate envelope	Combination	Min	X	0.00304	24	13.21	31.91	9.7
story3	ultimate envelope	Combination	Min	Y	0.002554	17	0	0	9.7

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
story3	seismic weight	Combination		X	0.000215	17	0	0	9.7
story3	seismic weight	Combination		Y	9.8E-05	25	13.21	28.26	9.7
story2	Dead	LinStatic		X	6.5E-05	36	13.21	0	6.65
story2	Dead	LinStatic		Y	3.8E-05	24	13.21	31.91	6.65
story2	Live	LinStatic		X	2.3E-05	36	13.21	0	6.65
story2	Live	LinStatic		Y	1.8E-05	24	13.21	31.91	6.65
story2	Floor finish	LinStatic		Y	2.2E-05	24	13.21	31.91	6.65
story2	sunken filling	LinStatic		X	8E-06	5	4.62	30.99	6.65
story2	sunken filling	LinStatic		Y	8E-06	35	9.43	0	6.65
story2	wall load	LinStatic		X	0.000124	36	13.21	0	6.65
story2	wall load	LinStatic		Y	3E-05	24	13.21	31.91	6.65
story2	seismic - X	LinStatic		X	0.002083	6	0	30.99	6.65
story2	seismic - Y	LinStatic		Y	0.002159	8	0	27.53	6.65
story2	RSX	LinRespSpec	Max	X	0.002687	3	9.43	31.91	6.65
story2	RXY	LinRespSpec	Max	X	0.001271	17	0	0	6.65
story2	RXY	LinRespSpec	Max	Y	0.002248	8	0	27.53	6.65
story2	roof live	LinStatic		X	8E-06	36	13.21	0	6.65
story2	(DL+LL)	Combination		X	0.000233	36	13.21	0	6.65
story2	(DL+LL)	Combination		Y	0.000104	24	13.21	31.91	6.65
story2	0.9DL+1.5EQX	Combination		X	0.003055	6	0	30.99	6.65
story2	0.9DL-1.5EQX	Combination		X	0.003194	6	0	30.99	6.65
story2	0.9DL+1.5RSX	Combination	Max	X	0.003959	6	0	30.99	6.65
story2	0.9DL+1.5RSX	Combination	Min	X	0.004103	3	9.43	31.91	6.65
story2	0.9DL-1.5RSX	Combination	Max	X	0.003959	6	0	30.99	6.65
story2	0.9DL-1.5RSX	Combination	Min	X	0.004103	3	9.43	31.91	6.65
story2	0.9DL-1.5EQY	Combination		Y	0.003277	6	0	30.99	6.65
story2	0.9DL+1.5EQY	Combination		Y	0.003209	17	0	0	6.65
story2	0.9DL+1.5RSY	Combination	Max	X	0.00177	3	9.43	31.91	6.65
story2	0.9DL+1.5RSY	Combination	Max	Y	0.003343	17	0	0	6.65
story2	0.9DL+1.5RSY	Combination	Min	X	0.002089	36	13.21	0	6.65
story2	0.9DL+1.5RSY	Combination	Min	Y	0.00341	8	0	27.53	6.65
story2	0.9DL-1.5RSY	Combination	Max	X	0.00177	3	9.43	31.91	6.65
story2	0.9DL-1.5RSY	Combination	Max	Y	0.003343	17	0	0	6.65
story2	0.9DL-1.5RSY	Combination	Min	X	0.002089	36	13.21	0	6.65
story2	0.9DL-1.5RSY	Combination	Min	Y	0.00341	8	0	27.53	6.65
story2	1.2(DL+LL+EQX)	Combination		X	0.002402	6	0	30.99	6.65
story2	1.2(DL+LL+EQX)	Combination		X	0.002628	19	9.43	13.3	6.65
story2	1.2(DL+LL+RSX)	Combination	Max	X	0.003125	6	0	30.99	6.65
story2	1.2(DL+LL+RSX)	Combination	Min	X	0.003329	24	13.21	31.91	6.65
story2	1.2(DL+LL+RSX)	Combination	Min	Y	0.000458	28	13.21	23.65	6.65
story2	1.2(DL+LL-RSX)	Combination	Max	X	0.003125	6	0	30.99	6.65
story2	1.2(DL+LL-RSX)	Combination	Min	X	0.003329	24	13.21	31.91	6.65
story2	1.2(DL+LL-RSX)	Combination	Min	Y	0.000458	28	13.21	23.65	6.65
story2	1.2(DL+LL+EQY)	Combination		Y	0.002546	17	0	0	6.65
story2	1.2(DL+LL+EQY)	Combination		Y	0.002653	6	0	30.99	6.65
story2	1.2(DL+LL+RSY)	Combination	Max	X	0.001371	3	9.43	31.91	6.65
story2	1.2(DL+LL+RSY)	Combination	Max	Y	0.002653	17	0	0	6.65
story2	1.2(DL+LL+RSY)	Combination	Min	X	0.001805	36	13.21	0	6.65
story2	1.2(DL+LL+RSY)	Combination	Min	Y	0.002759	6	0	30.99	6.65
story2	1.2(DL+LL-RSY)	Combination	Max	X	0.001371	3	9.43	31.91	6.65
story2	1.2(DL+LL-RSY)	Combination	Max	Y	0.002653	17	0	0	6.65
story2	1.2(DL+LL-RSY)	Combination	Min	X	0.001805	36	13.21	0	6.65
story2	1.2(DL+LL-RSY)	Combination	Min	Y	0.002759	6	0	30.99	6.65
story2	1.5(DL+EQX)	Combination		X	0.003009	6	0	30.99	6.65

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
story2	1.5(DL+EQY)	Combination		Y	0.003192	17	0	0	6.65
story2	1.5(DL+RSX)	Combination	Max	X	0.003912	6	0	30.99	6.65
story2	1.5(DL+RSX)	Combination	Min	X	0.004153	24	13.21	31.91	6.65
story2	1.5(DL+RSY)	Combination	Max	X	0.001721	3	9.43	31.91	6.65
story2	1.5(DL+RSY)	Combination	Max	Y	0.003325	17	0	0	6.65
story2	1.5(DL+RSY)	Combination	Min	X	0.00221	36	13.21	0	6.65
story2	1.5(DL+RSY)	Combination	Min	Y	0.003436	6	0	30.99	6.65
story2	1.5(DL-EQX)	Combination		X	0.00325	19	9.43	13.3	6.65
story2	1.5(DL-EQY)	Combination		Y	0.003304	6	0	30.99	6.65
story2	1.5(DL-RSX)	Combination	Max	X	0.003912	6	0	30.99	6.65
story2	1.5(DL-RSX)	Combination	Min	X	0.004153	24	13.21	31.91	6.65
story2	1.5(DL-RSY)	Combination	Max	X	0.001721	3	9.43	31.91	6.65
story2	1.5(DL-RSY)	Combination	Max	Y	0.003325	17	0	0	6.65
story2	1.5(DL-RSY)	Combination	Min	X	0.00221	36	13.21	0	6.65
story2	1.5(DL-RSY)	Combination	Min	Y	0.003436	6	0	30.99	6.65
story2	DL+0.8LL+0.8EQX	Combination		X	0.001586	6	0	30.99	6.65
story2	DL+0.8LL+0.8EQY	Combination		X	0.000475	36	13.21	0	6.65
story2	DL+0.8LL+0.8EQY	Combination		Y	0.001692	17	0	0	6.65
story2	DL+0.8LL+0.8RSX	Combination		X	0.000475	36	13.21	0	6.65
story2	DL+0.8LL+0.8RSX	Combination		Y	0.001692	17	0	0	6.65
story2	DL+0.8LL+0.8EQX	Combination		X	0.001785	13	1.45	7.05	6.65
story2	DL+0.8LL+0.8EQY	Combination		Y	0.001777	6	0	30.99	6.65
story2	DL+0.8LL+0.8RSX	Combination	Max	X	0.002068	6	0	30.99	6.65
story2	DL+0.8LL+0.8RSX	Combination	Min	X	0.002236	24	13.21	31.91	6.65
story2	DL+0.8LL+0.8RSX	Combination	Min	Y	0.000322	24	13.21	31.91	6.65
story2	DL+0.8LL+0.8RSY	Combination	Max	X	0.000897	4	6.64	31.91	6.65
story2	DL+0.8LL+0.8RSY	Combination	Max	Y	0.001763	17	0	0	6.65
story2	DL+0.8LL+0.8RSY	Combination	Min	X	0.001244	36	13.21	0	6.65
story2	DL+0.8LL+0.8RSY	Combination	Min	Y	0.001848	6	0	30.99	6.65
story2	DL+0.8LL+0.8RSY	Combination	Max	X	0.000897	4	6.64	31.91	6.65
story2	DL+0.8LL+0.8RSY	Combination	Max	Y	0.001763	17	0	0	6.65
story2	DL+0.8LL+0.8RSY	Combination	Min	X	0.001244	36	13.21	0	6.65
story2	DL+0.8LL+0.8RSY	Combination	Min	Y	0.001848	6	0	30.99	6.65
story2	DL+EQX	Combination		X	0.002006	6	0	30.99	6.65
story2	DL+EQY	Combination		Y	0.002128	17	0	0	6.65
story2	DL+RSX	Combination	Max	X	0.002608	6	0	30.99	6.65
story2	DL+RSX	Combination	Min	X	0.002768	24	13.21	31.91	6.65
story2	DL+RSY	Combination	Max	X	0.001147	3	9.43	31.91	6.65
story2	DL+RSY	Combination	Max	Y	0.002217	17	0	0	6.65
story2	DL+RSY	Combination	Min	X	0.001473	36	13.21	0	6.65
story2	DL+RSY	Combination	Min	Y	0.002291	6	0	30.99	6.65
story2	DL-EQX	Combination		X	0.002167	19	9.43	13.3	6.65
story2	DL-EQY	Combination		Y	0.002202	6	0	30.99	6.65
story2	DL-RSX	Combination	Max	X	0.002608	6	0	30.99	6.65
story2	DL-RSX	Combination	Min	X	0.002768	24	13.21	31.91	6.65
story2	DL-RSY	Combination	Max	X	0.001147	3	9.43	31.91	6.65
story2	DL-RSY	Combination	Max	Y	0.002217	17	0	0	6.65
story2	DL-RSY	Combination	Min	X	0.001473	36	13.21	0	6.65
story2	DL-RSY	Combination	Min	Y	0.002291	6	0	30.99	6.65
story2	1.5(DL+LL)	Combination		X	0.00035	36	13.21	0	6.65
story2	1.5(DL+LL)	Combination		Y	0.000155	24	13.21	31.91	6.65
story2	ultimate envelope	Combination	Max	X	0.003959	6	0	30.99	6.65
story2	ultimate envelope	Combination	Max	Y	0.003343	17	0	0	6.65
story2	ultimate envelope	Combination	Min	X	0.004153	24	13.21	31.91	6.65

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
story2	ultimate envelope	Combination	Min	Y	0.003436	6	0	30.99	6.65
story2	seismic weight	Combination		X	0.000208	36	13.21	0	6.65
story2	seismic weight	Combination		Y	9E-05	24	13.21	31.91	6.65
story1	Dead	LinStatic		X	5.7E-05	17	0	0	3.6
story1	Dead	LinStatic		Y	2.3E-05	36	13.21	0	3.6
story1	Live	LinStatic		X	1.4E-05	17	0	0	3.6
story1	Live	LinStatic		Y	1.1E-05	4	6.64	31.91	3.6
story1	Floor finish	LinStatic		X	1E-05	17	0	0	3.6
story1	Floor finish	LinStatic		Y	1.3E-05	4	6.64	31.91	3.6
story1	sunken filling	LinStatic		X	6E-06	7	4.62	27.53	3.6
story1	sunken filling	LinStatic		Y	8E-06	4	6.64	31.91	3.6
story1	wall load	LinStatic		X	0.000131	33	9.43	7.05	3.6
story1	wall load	LinStatic		Y	2.6E-05	16	4.62	0	3.6
story1	seismic - X	LinStatic		X	0.002221	24	13.21	31.91	3.6
story1	seismic - Y	LinStatic		Y	0.002387	17	0	0	3.6
story1	RSX	LinRespSpec	Max	X	0.003187	24	13.21	31.91	3.6
story1	RXY	LinRespSpec	Max	X	0.001624	36	13.21	0	3.6
story1	RXY	LinRespSpec	Max	Y	0.002752	17	0	0	3.6
story1	roof live	LinStatic		X	4E-06	17	0	0	3.6
story1	(DL+LL)	Combination		X	0.000208	17	0	0	3.6
story1	(DL+LL)	Combination		Y	5.8E-05	4	6.64	31.91	3.6
story1	0.9DL+1.5EQX	Combination		X	0.003208	24	13.21	31.91	3.6
story1	0.9DL-1.5EQX	Combination		X	0.003455	24	13.21	31.91	3.6
story1	0.9DL+1.5RSX	Combination	Max	X	0.004657	24	13.21	31.91	3.6
story1	0.9DL+1.5RSX	Combination	Min	X	0.004904	24	13.21	31.91	3.6
story1	0.9DL-1.5RSX	Combination	Max	X	0.004657	24	13.21	31.91	3.6
story1	0.9DL-1.5RSX	Combination	Min	X	0.004904	24	13.21	31.91	3.6
story1	0.9DL-1.5EQY	Combination		Y	0.003601	17	0	0	3.6
story1	0.9DL+1.5EQY	Combination		Y	0.003565	6	0	30.99	3.6
story1	0.9DL+1.5RSY	Combination	Max	X	0.002141	24	13.21	31.91	3.6
story1	0.9DL+1.5RSY	Combination	Max	Y	0.00411	6	0	30.99	3.6
story1	0.9DL+1.5RSY	Combination	Min	X	0.002455	36	13.21	0	3.6
story1	0.9DL+1.5RSY	Combination	Min	Y	0.004148	17	0	0	3.6
story1	0.9DL-1.5RSY	Combination	Max	X	0.002141	24	13.21	31.91	3.6
story1	0.9DL-1.5RSY	Combination	Max	Y	0.00411	6	0	30.99	3.6
story1	0.9DL-1.5RSY	Combination	Min	X	0.002455	36	13.21	0	3.6
story1	0.9DL-1.5RSY	Combination	Min	Y	0.004148	17	0	0	3.6
story1	1.2(DL+LL+EQX)	Combination		X	0.002494	24	13.21	31.91	3.6
story1	1.2(DL+LL+EQX)	Combination		X	0.002836	24	13.21	31.91	3.6
story1	1.2(DL+LL+RSX)	Combination	Max	X	0.003653	24	13.21	31.91	3.6
story1	1.2(DL+LL+RSX)	Combination	Min	X	0.003996	24	13.21	31.91	3.6
story1	1.2(DL+LL-RSX)	Combination	Max	X	0.003653	24	13.21	31.91	3.6
story1	1.2(DL+LL-RSX)	Combination	Min	X	0.003996	24	13.21	31.91	3.6
story1	1.2(DL+LL+EQY)	Combination		Y	0.00284	6	0	30.99	3.6
story1	1.2(DL+LL+EQY)	Combination		Y	0.002896	17	0	0	3.6
story1	1.2(DL+LL+RSY)	Combination	Max	X	0.00164	24	13.21	31.91	3.6
story1	1.2(DL+LL+RSY)	Combination	Max	Y	0.003276	6	0	30.99	3.6
story1	1.2(DL+LL+RSY)	Combination	Min	X	0.002076	35	9.43	0	3.6
story1	1.2(DL+LL+RSY)	Combination	Min	Y	0.003333	17	0	0	3.6
story1	1.2(DL+LL-RSY)	Combination	Max	X	0.00164	24	13.21	31.91	3.6
story1	1.2(DL+LL-RSY)	Combination	Max	Y	0.003276	6	0	30.99	3.6
story1	1.2(DL+LL-RSY)	Combination	Min	X	0.002076	35	9.43	0	3.6
story1	1.2(DL+LL-RSY)	Combination	Min	Y	0.003333	17	0	0	3.6
story1	1.5(DL+EQX)	Combination		X	0.003126	24	13.21	31.91	3.6

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
story1	1.5(DL+EQY)	Combination		Y	0.003556	6	0	30.99	3.6
story1	1.5(DL+RSX)	Combination	Max	X	0.004574	24	13.21	31.91	3.6
story1	1.5(DL+RSX)	Combination	Min	X	0.004986	24	13.21	31.91	3.6
story1	1.5(DL+RSY)	Combination	Max	X	0.002059	24	13.21	31.91	3.6
story1	1.5(DL+RSY)	Combination	Max	Y	0.004101	6	0	30.99	3.6
story1	1.5(DL+RSY)	Combination	Min	X	0.002568	35	9.43	0	3.6
story1	1.5(DL+RSY)	Combination	Min	Y	0.004161	17	0	0	3.6
story1	1.5(DL-EQX)	Combination		X	0.003538	24	13.21	31.91	3.6
story1	1.5(DL-EQY)	Combination		Y	0.003614	17	0	0	3.6
story1	1.5(DL-RSX)	Combination	Max	X	0.004574	24	13.21	31.91	3.6
story1	1.5(DL-RSX)	Combination	Min	X	0.004986	24	13.21	31.91	3.6
story1	1.5(DL-RSY)	Combination	Max	X	0.002059	24	13.21	31.91	3.6
story1	1.5(DL-RSY)	Combination	Max	Y	0.004101	6	0	30.99	3.6
story1	1.5(DL-RSY)	Combination	Min	X	0.002568	35	9.43	0	3.6
story1	1.5(DL-RSY)	Combination	Min	Y	0.004161	17	0	0	3.6
story1	DL+0.8LL+0.8EQX	Combination		X	0.001635	24	13.21	31.91	3.6
story1	DL+0.8LL+0.8EQY	Combination		Y	0.00189	6	0	30.99	3.6
story1	DL+0.8LL+0.8RSX	Combination		Y	0.00189	6	0	30.99	3.6
story1	DL+0.8LL+0.8EQX	Combination		X	0.001918	24	13.21	31.91	3.6
story1	DL+0.8LL+0.8EQY	Combination		Y	0.001935	17	0	0	3.6
story1	DL+0.8LL+0.8RSX	Combination	Max	X	0.002408	24	13.21	31.91	3.6
story1	DL+0.8LL+0.8RSX	Combination	Min	X	0.002691	24	13.21	31.91	3.6
story1	DL+0.8LL+0.8RSY	Combination	Max	X	0.001066	24	13.21	31.91	3.6
story1	DL+0.8LL+0.8RSY	Combination	Max	Y	0.002181	6	0	30.99	3.6
story1	DL+0.8LL+0.8RSY	Combination	Min	X	0.001421	35	9.43	0	3.6
story1	DL+0.8LL+0.8RSY	Combination	Min	Y	0.002227	17	0	0	3.6
story1	DL+0.8LL+0.8RSY	Combination	Max	X	0.001066	24	13.21	31.91	3.6
story1	DL+0.8LL+0.8RSY	Combination	Max	Y	0.002181	6	0	30.99	3.6
story1	DL+0.8LL+0.8RSY	Combination	Min	X	0.001421	35	9.43	0	3.6
story1	DL+0.8LL+0.8RSY	Combination	Min	Y	0.002227	17	0	0	3.6
story1	DL+EQX	Combination		X	0.002084	24	13.21	31.91	3.6
story1	DL+EQY	Combination		Y	0.002371	6	0	30.99	3.6
story1	DL+RSX	Combination	Max	X	0.00305	24	13.21	31.91	3.6
story1	DL+RSX	Combination	Min	X	0.003324	24	13.21	31.91	3.6
story1	DL+RSY	Combination	Max	X	0.001372	24	13.21	31.91	3.6
story1	DL+RSY	Combination	Max	Y	0.002734	6	0	30.99	3.6
story1	DL+RSY	Combination	Min	X	0.001712	35	9.43	0	3.6
story1	DL+RSY	Combination	Min	Y	0.002774	17	0	0	3.6
story1	DL-EQX	Combination		X	0.002358	24	13.21	31.91	3.6
story1	DL-EQY	Combination		Y	0.002409	17	0	0	3.6
story1	DL-RSX	Combination	Max	X	0.00305	24	13.21	31.91	3.6
story1	DL-RSX	Combination	Min	X	0.003324	24	13.21	31.91	3.6
story1	DL-RSY	Combination	Max	X	0.001372	24	13.21	31.91	3.6
story1	DL-RSY	Combination	Max	Y	0.002734	6	0	30.99	3.6
story1	DL-RSY	Combination	Min	X	0.001712	35	9.43	0	3.6
story1	DL-RSY	Combination	Min	Y	0.002774	17	0	0	3.6
story1	1.5(DL+LL)	Combination		X	0.000312	17	0	0	3.6
story1	1.5(DL+LL)	Combination		Y	8.E-05	4	6.64	31.91	3.6
story1	ultimate envelope	Combination	Max	X	0.004657	24	13.21	31.91	3.6
story1	ultimate envelope	Combination	Max	Y	0.00411	6	0	30.99	3.6
story1	ultimate envelope	Combination	Min	X	0.004986	24	13.21	31.91	3.6
story1	ultimate envelope	Combination	Min	Y	0.004161	17	0	0	3.6
story1	seismic weight	Combination		X	0.000193	17	0	0	3.6
story1	seismic weight	Combination		Y	5E-05	4	6.64	31.91	3.6

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
plinth beam	Dead	LinStatic		X	2.4E-05	17	0	0	0
plinth beam	Live	LinStatic		X	1.2E-05	8	0	27.53	0
plinth beam	Live	LinStatic		Y	1.3E-05	4	6.64	31.91	0
plinth beam	Floor finish	LinStatic		X	1.3E-05	8	0	27.53	0
plinth beam	Floor finish	LinStatic		Y	1.6E-05	4	6.64	31.91	0
plinth beam	sunken filling	LinStatic		Y	2.7E-05	4	6.64	31.91	0
plinth beam	wall load	LinStatic		X	0.000109	10	1.45	17.14	0
plinth beam	seismic - X	LinStatic		X	0.000848	6	0	30.99	0
plinth beam	seismic - Y	LinStatic		Y	0.000903	40	1.45	23.65	0
plinth beam	RSX	LinRespSpec	Max	X	0.001247	6	0	30.99	0
plinth beam	RXY	LinRespSpec	Max	X	0.000601	17	0	0	0
plinth beam	RXY	LinRespSpec	Max	Y	0.001049	40	1.45	23.65	0
plinth beam	roof live	LinStatic		X	1E-06	14	0	3.58	0
plinth beam	roof live	LinStatic		Y	1E-06	29	4.62	12.69	0
plinth beam	(DL+LL)	Combination		X	0.000125	10	1.45	17.14	0
plinth beam	(DL+LL)	Combination		Y	7.1E-05	4	6.64	31.91	0
plinth beam	09DL+1.5EQX	Combination		X	0.001203	5	4.62	30.99	0
plinth beam	09DL+1.5EQX	Combination		X	0.001354	8	0	27.53	0
plinth beam	0.9DL+1.5RSX	Combination	Max	X	0.001802	6	0	30.99	0
plinth beam	0.9DL+1.5RSX	Combination	Min	X	0.00194	6	0	30.99	0
plinth beam	0.9DL+1.5RSX	Combination	Max	X	0.001802	6	0	30.99	0
plinth beam	0.9DL+1.5RSX	Combination	Min	X	0.00194	6	0	30.99	0
plinth beam	09DL+1.5EQY	Combination		Y	0.001371	33	9.43	7.05	0
plinth beam	09DL+1.5EQY	Combination		Y	0.0014	40	1.45	23.65	0
plinth beam	0.9DL+1.5RSY	Combination	Max	X	0.000823	16	4.62	0	0
plinth beam	0.9DL+1.5RSY	Combination	Max	Y	0.001618	40	1.45	23.65	0
plinth beam	0.9DL+1.5RSY	Combination	Min	X	0.000979	17	0	0	0
plinth beam	0.9DL+1.5RSY	Combination	Min	Y	0.001542	14	0	3.58	0
plinth beam	0.9DL+1.5RSY	Combination	Max	X	0.000823	16	4.62	0	0
plinth beam	0.9DL+1.5RSY	Combination	Max	Y	0.001618	40	1.45	23.65	0
plinth beam	0.9DL+1.5RSY	Combination	Min	X	0.000979	17	0	0	0
plinth beam	0.9DL+1.5RSY	Combination	Min	Y	0.001542	14	0	3.58	0
plinth beam	1.2(DL+LL+EQX)	Combination		X	0.00092	24	13.21	31.91	0
plinth beam	1.2(DL+LL+EQX)	Combination		X	0.001145	8	0	27.53	0
plinth beam	1.2(DL+LL+RSX)	Combination	Max	X	0.001398	5	4.62	30.99	0
plinth beam	1.2(DL+LL+RSX)	Combination	Min	X	0.001604	8	0	27.53	0
plinth beam	1.2(DL+LL+RSX)	Combination	Max	X	0.001398	5	4.62	30.99	0
plinth beam	1.2(DL+LL+RSX)	Combination	Min	X	0.001604	8	0	27.53	0
plinth beam	1.2(DL+LL+EQY)	Combination		Y	0.001157	40	1.45	23.65	0
plinth beam	1.2(DL+LL+EQY)	Combination		Y	0.001128	33	9.43	7.05	0
plinth beam	1.2(DL+LL+RSY)	Combination	Max	X	0.000621	24	13.21	31.91	0
plinth beam	1.2(DL+LL+RSY)	Combination	Max	Y	0.001331	40	1.45	23.65	0
plinth beam	1.2(DL+LL+RSY)	Combination	Min	X	0.000835	17	0	0	0
plinth beam	1.2(DL+LL+RSY)	Combination	Min	Y	0.001228	17	0	0	0
plinth beam	1.2(DL+LL+RSY)	Combination	Max	X	0.000621	24	13.21	31.91	0
plinth beam	1.2(DL+LL+RSY)	Combination	Max	Y	0.001331	40	1.45	23.65	0
plinth beam	1.2(DL+LL+RSY)	Combination	Min	X	0.000835	17	0	0	0
plinth beam	1.2(DL+LL+RSY)	Combination	Min	Y	0.001228	17	0	0	0
plinth beam	1.5(DL+EQX)	Combination		X	0.001159	5	4.62	30.99	0
plinth beam	1.5(DL+EQY)	Combination		Y	0.00143	40	1.45	23.65	0
plinth beam	1.5(DL+RSX)	Combination	Max	X	0.001756	5	4.62	30.99	0
plinth beam	1.5(DL+RSX)	Combination	Min	X	0.001987	6	0	30.99	0
plinth beam	1.5(DL+RSY)	Combination	Max	X	0.000781	24	13.21	31.91	0
plinth beam	1.5(DL+RSY)	Combination	Max	Y	0.001648	40	1.45	23.65	0

Story	Output Case	Case Type	Step Type	Direction	Drift	Label	X m	Y m	Z m
plinth beam	1.5(DL+RSY)	Combination	Min	X	0.001031	17	0	0	0
plinth beam	1.5(DL+RSY)	Combination	Min	Y	0.001537	17	0	0	0
plinth beam	1.5(DL-EQX)	Combination		X	0.001412	8	0	27.53	0
plinth beam	1.5(DL-EQY)	Combination		Y	0.001397	33	9.43	7.05	0
plinth beam	1.5(DL-RSX)	Combination	Max	X	0.001756	5	4.62	30.99	0
plinth beam	1.5(DL-RSX)	Combination	Min	X	0.001987	6	0	30.99	0
plinth beam	1.5(DL-RSY)	Combination	Max	X	0.000781	24	13.21	31.91	0
plinth beam	1.5(DL-RSY)	Combination	Max	Y	0.001648	40	1.45	23.65	0
plinth beam	1.5(DL-RSY)	Combination	Min	X	0.001031	17	0	0	0
plinth beam	1.5(DL-RSY)	Combination	Min	Y	0.001537	17	0	0	0
plinth beam	DL+0.8LL+0.8EQX	Combination		X	0.000602	24	13.21	31.91	0
plinth beam	DL+0.8LL+0.8EQY	Combination		X	0.000191	17	0	0	0
plinth beam	DL+0.8LL+0.8EQY	Combination		Y	0.000781	40	1.45	23.65	0
plinth beam	DL+0.8LL+0.8RSX	Combination		X	0.000191	17	0	0	0
plinth beam	DL+0.8LL+0.8RSX	Combination		Y	0.000781	40	1.45	23.65	0
plinth beam	DL+0.8LL-0.8EQX	Combination		X	0.000783	8	0	27.53	0
plinth beam	DL+0.8LL-0.8EQY	Combination		X	0.000179	8	0	27.53	0
plinth beam	DL+0.8LL-0.8EQY	Combination		Y	0.000761	33	9.43	7.05	0
plinth beam	DL+0.8LL-0.8RSX	Combination	Max	X	0.000917	5	4.62	30.99	0
plinth beam	DL+0.8LL-0.8RSX	Combination	Max	Y	0.00013	4	6.64	31.91	0
plinth beam	DL+0.8LL-0.8RSX	Combination	Min	X	0.001089	8	0	27.53	0
plinth beam	DL+0.8LL+0.8RSY	Combination	Max	X	0.000402	24	13.21	31.91	0
plinth beam	DL+0.8LL+0.8RSY	Combination	Max	Y	0.000897	40	1.45	23.65	0
plinth beam	DL+0.8LL+0.8RSY	Combination	Min	X	0.000574	17	0	0	0
plinth beam	DL+0.8LL+0.8RSY	Combination	Min	Y	0.000817	17	0	0	0
plinth beam	DL+0.8LL-0.8RSY	Combination	Max	X	0.000402	24	13.21	31.91	0
plinth beam	DL+0.8LL-0.8RSY	Combination	Max	Y	0.000897	40	1.45	23.65	0
plinth beam	DL+0.8LL-0.8RSY	Combination	Min	X	0.000574	17	0	0	0
plinth beam	DL+0.8LL-0.8RSY	Combination	Min	Y	0.000817	17	0	0	0
plinth beam	DL+EQX	Combination		X	0.000773	5	4.62	30.99	0
plinth beam	DL+EQY	Combination		Y	0.000953	40	1.45	23.65	0
plinth beam	DL+RSX	Combination	Max	X	0.001171	5	4.62	30.99	0
plinth beam	DL+RSX	Combination	Min	X	0.001324	6	0	30.99	0
plinth beam	DL+RSY	Combination	Max	X	0.000521	24	13.21	31.91	0
plinth beam	DL+RSY	Combination	Max	Y	0.001099	40	1.45	23.65	0
plinth beam	DL+RSY	Combination	Min	X	0.000687	17	0	0	0
plinth beam	DL+RSY	Combination	Min	Y	0.001025	17	0	0	0
plinth beam	DL-EQX	Combination		X	0.000941	8	0	27.53	0
plinth beam	DL-EQY	Combination		Y	0.000932	33	9.43	7.05	0
plinth beam	DL-RSX	Combination	Max	X	0.001171	5	4.62	30.99	0
plinth beam	DL-RSX	Combination	Min	X	0.001324	6	0	30.99	0
plinth beam	DL-RSY	Combination	Max	X	0.000521	24	13.21	31.91	0
plinth beam	DL-RSY	Combination	Max	Y	0.001099	40	1.45	23.65	0
plinth beam	DL-RSY	Combination	Min	X	0.000687	17	0	0	0
plinth beam	DL-RSY	Combination	Min	Y	0.001025	17	0	0	0
plinth beam	1.5(DL+LL)	Combination		X	0.000188	10	1.45	17.14	0
plinth beam	1.5(DL+LL)	Combination		Y	0.000106	4	6.64	31.91	0
plinth beam	ultimate envelope	Combination	Max	X	0.001802	6	0	30.99	0
plinth beam	ultimate envelope	Combination	Max	Y	0.001648	40	1.45	23.65	0
plinth beam	ultimate envelope	Combination	Min	X	0.001987	6	0	30.99	0
plinth beam	ultimate envelope	Combination	Min	Y	0.001542	14	0	3.58	0
plinth beam	seismic weight	Combination		X	0.000125	10	1.45	17.14	0

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	1.285	0.778	4.8904	23.916
Modal	2	1.239	0.807	5.0714	25.719
Modal	3	1.085	0.922	5.7901	33.5251
Modal	4	0.391	2.56	16.0872	258.7974
Modal	5	0.377	2.652	16.665	277.7232
Modal	6	0.325	3.075	19.3204	373.277
Modal	7	0.218	4.586	28.8137	830.2308
Modal	8	0.208	4.817	30.2658	916.0169
Modal	9	0.177	5.636	35.4126	1254.0491
Modal	10	0.168	5.953	37.4025	1398.9464
Modal	11	0.148	6.752	42.4267	1800.0285
Modal	12	0.139	7.204	45.267	2049.1057

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	1.285	0.007	0.7377	0	0.007	0.7377	0	0.1181	0.0011	0.1176
Modal	2	1.239	0.8415	0.0138	0	0.8486	0.7515	0	0.002	0.1378	0.0043
Modal	3	1.085	0.011	0.1161	0	0.8596	0.8676	0	0.0116	0.002	0.7506
Modal	4	0.391	0.0009	0.0526	0	0.8605	0.9202	0	0.5183	0.0086	0.0095
Modal	5	0.377	0.0673	0.0014	0	0.9278	0.9215	0	0.0136	0.5836	0.0001
Modal	6	0.325	0.0007	0.0082	0	0.9285	0.9297	0	0.0795	0.0063	0.0522
Modal	7	0.218	0.0001	0.0116	0	0.9286	0.9413	0	0.0157	0.0001	0.0023
Modal	8	0.208	0.0145	0.0001	0	0.9431	0.9414	0	0.0001	0.0237	3.287E-05
Modal	9	0.177	6.471E-06	0.0027	0	0.9431	0.944	0	0.0053	7.335E-06	0.0087
Modal	10	0.168	0.0002	0.0014	0	0.9433	0.9454	0	0.0098	0.0004	0.0028
Modal	11	0.148	0.0033	0.001	0	0.9466	0.9464	0	0.0056	0.0163	2.334E-05
Modal	12	0.139	0.0012	0.0032	0	0.9478	0.9496	0	0.0167	0.0064	0.0002

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

SumRX	SumRY	SumRZ
0.1181	0.0011	0.1176
0.1201	0.1389	0.1219
0.1317	0.1408	0.8725
0.65	0.1495	0.882
0.6636	0.7331	0.8821
0.7431	0.7394	0.9343
0.7588	0.7395	0.9367
0.7589	0.7632	0.9367
0.7642	0.7632	0.9454
0.774	0.7636	0.9482
0.7796	0.7799	0.9482
0.7963	0.7864	0.9484

Table 4.5 - Modal Load Participation Ratios

Case	ItemType	Item	Static %	Dynamic %
Modal	Acceleration	UX	99.98	94.78
Modal	Acceleration	UY	99.97	94.96
Modal	Acceleration	UZ	0	0

DESIGN OF ISOLATED SQUARE FOOTING: (C12)

Load in kn (P)	1250	Size of pedestal	380
SBC in kn/m ²	200	Free end thickness	230
Size of the footing required (B)	2.5	Size provided	2.5
Net upward pressure (Po)	200	Size in feet	8.2
Maximum bending moment @ face of the column (Mu)	421.35	Depth provided (d)	650
Depth required (d)	633.833		
K	2.624		
Pt	0.885		
Ast in mm ²	2187.67		
Spacing of 10mm dia	89.752		
Spacing of 12mm dia	129.246		
Spacing of 16mm dia	229.764		
<u>Check for one way shear:</u>			
Shear force (V)	307.5		
Eff. Depth (d')	392.452		
Top width	1680		
Tv	0.466		
Pt	0.5		
Ast in mm ²	3296.603		
Spacing of 10mm dia	59.561		
Spacing of 12mm dia	85.770		
Spacing of 16mm dia	152.475		
<u>Check for two way shear:</u>			
Punching shear (F)	1037.82		
Eff. Depth (d')	521.226		
Tv	0.724		
Tc	0.968		
<u>Check for transfer of load @ the column base:</u>			
Permissible bearing stress	13.5		
Actual bearing stress	8.656		

Design of short column with bi axial bending: C12

Description	Stilt
Axial load in Kn	1310
Moment in Knm (Mux)	71
Moment in Knm (Muy)	142
Assumed length of column in mm (D)	525
Assumed breadth of column in mm (B)	300
Assumed % of steel	2.4
Grade of concrete	25
p/fck	0.096
d'/D	0.095
d'/B	0.166
$P_u/(f_{ck} \cdot B \cdot D)$	0.333
Referring to chart in SP-16	chart-48
Value from chart	0.15
Mux1 in Knm	310.078
Referring to chart in SP-16	chart-50
Value from chart	0.13
Muy1 in Knm	153.563
Referring to chart-63 of SP-16	
Puz/ Ag	20
Puz in Kn	3150
Pu/Puz	0.415
Mux/Mux1	0.229
Muy/Muy1	0.924
Referring to chart-64 of SP-16	
Permissible Muy/Muy1	0.93
Check	safe and assumed % of steel is correct
Ast required	4095
Provide steel	
Dia of lateral ties:	
Dia of main rod provided	20
6mm	6mm
1/4 times Dia of main rod	05mm
Dia of lateral ties choosen	8mm
Spacing of lateral ties:	
16 times the dia of main rod	320
Least lateral dimension of column	300
Provide 8mm dia 2 legged lateral ties	
@	175 mm c/c

Design of Floor Slab:

Assume the slab thickness as 150 mm

$$\text{Dead load of slab (} 0.15 \times 25 \text{)} = 3.75 \text{ kn/m}^2$$

$$\text{Live load} = 2.00 \text{ kn/m}^2$$

$$\text{Partition wall load} = 1.00 \text{ kn/m}^2$$

$$\text{Floor finish load} = 1.00 \text{ kn/m}^2$$

$$7.75 \text{ kn/m}^2$$

$$\text{Say } w = 8.0 \text{ kn/m}^2$$

$$\text{Long span } L_y = 9.42 \text{ m}$$

$$\text{Short span } L_x = 3.47 \text{ m}$$

$$L_y / L_x = 2.72 > 2.0$$

To design as one way slab and slab thickness as 125mm

$$\text{Positive moment @ mid span} = (1.5 \times 8 \times 3.47^2) / 8$$

$$= 18.06 \text{ knm}$$

Referring to the table – 37 of SP – 16 and assuming the slab thickness as 125mm

Provide 10mm dia @ 130mm c/c along shorter span and 8mm dia @ 150mm c/c along the longer span with alternate rods cranked @ 0.2 times of respective span

Check for deflection:

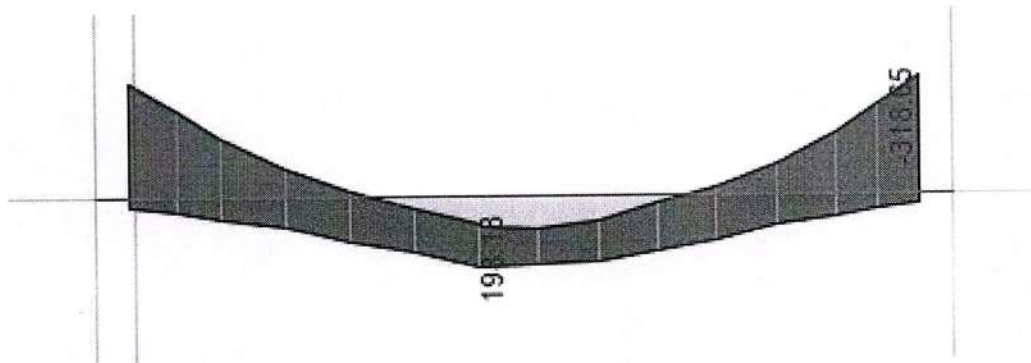
$$\text{Permissible span / depth} = 22 \times 1.3 \text{ (referring to chart 23)}$$

$$= 28.60$$

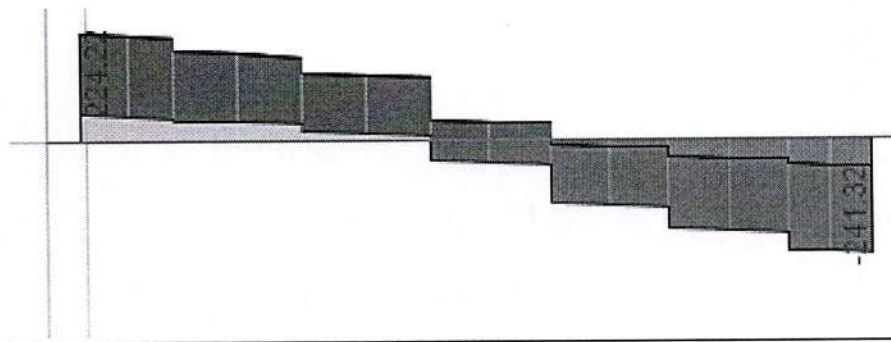
$$\begin{aligned}\text{Actual deflection} &= 3470 / 125 \\ &= 27.76 < 29.90\end{aligned}$$

Hence safe

Design of critical floor beam:



Critical Bending Moment Diagram



Critical Shear Force Diagram

Assume beam size as 230mm x 600mm

$$\text{Max factored B.M @ top of support} = 319\text{knm}$$

$$K = 4.58, \quad P_t = 1.253, \quad P_c = 0.325$$

$$A_{st} = 1585 \text{ mm}^2 \quad A_{sc} = 412 \text{ mm}^2$$

10-Apr-24

Therefore provide 3-20+2-20mm dia@ top of support

Max factored moment @ bottom = 199knm

$$K = 2.86, Pt = 0.794$$

$$A_{st} = 1005 \text{ mm}^2$$

Therefore provide 3-20+2-12mm dia @ bottom

Factored shear force @ support = 242kn

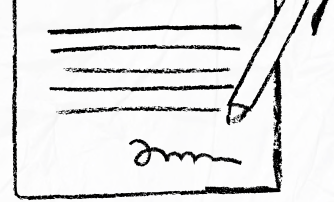
$$V_{us} = 242000 - (0.69 \times 230 \times 550)$$

$$V_{us}/d = 2.82 \text{ kn/cm}$$

Referring to Table – 62 of SP-16, provide 8mm dia stirrups @ 125mm c/c

end of report


N. KANAGAVEL M.E, M.B.A., MIE., FIV
Registered Structural Engineer Grade-I
CMDA Reg.No. SE/GR-I/19/03/049
GCC Reg.No.RSE100022019
CA-12, Tarangani Complex,
Ambattur Industrial Estate
Mogappair West, Chennai-600 058



our services doesn't just end there



Buying & Selling Services

Property Buying Assistance, Property Selling Support, Market Price Analysis, Owner Outreach and Negotiation.



Legal & Documentation Services

Certified EC, Patta, legal opinions, property verification, due diligence, litigation solutions, and legal heir certificates.



Property Development & Approvals

Building plan approvals, construction, layout and sub-division approvals, zone conversion, and occupancy certification.



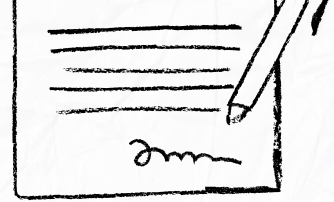
NRI & Investment Services

Escrow Services, Rentals, Litigation Solutions, Property Valuation and Property Management



Compliance & Special Services

Demolition, Vaasthu checks, regularization of unauthorized buildings, and office space solutions.



 **empowering your real estate decisions**
with smart tools



Property Valuation & Cost Estimation

Guideline Value, Apartment Composite Value, Stamp Duty & Registration Fees Calculator, Building Value Calculator, Capital Gains Calculator, Area Unit Converter, Length Unit Converter



Ownership, Compliance & Legal Verification

Encumbrance Certificate (EC) Search, Find Your SRO, Temple Property Check, WAQF Property Check, View Patta/Chitta, View FMB, Patta Analyzer, EC Analyzer



Zoning & Land Use Analysis

Land Use Zone Finder, CRZ Zone Check, Aquifer Zone Check, CBA Check, EWS Check, Road Width Check, Proposed Road Widening Check, FSI Calculator



Property Documentation & Workflow Tools

Forms & Templates, Document Generator, Document Translation, Dictionary



Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management



We're honored to be part of your
real estate journey

3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai, India

hello@verified.realestate
[+91 9996 12 9996](tel:+919996129996)
www.verified.realestate