High Rise Building In New Metro City

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ABSTRACT

The principal objective of this project is to RCC design a multi-storeyed building using STAAD pro. The design involve load calculation and analyzing the whole structure by STAAD pro. The design method used in STAAD pro analysis are limit state design conforming to Indian slandered code of practice. The thesis involves STAAD modeling, analysis the member due to the effect of wind load for a 120meter height building with concrete. The proposal structure is a 30 storied building with 3.5 meter as the height of each floor. The overall plan dimension of the building with 20.0meter X 20.0 meter.

Keyword : - *Dead Load, Live Load, Wind Load for RCC structure*

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1. Introduction & Objective

The focus of this study, in the field of wind engineering, is on the comparison of The focus of this study, in the field of wind engineering, is on the comparison of the dynamic behavior of a multi-story reinforced concrete building & how they respond to wind induced excitations. Tall buildings are often of complex geometry while the building design codes, used to evaluate the dynamic properties of structures in the design phase, are based on simplified generic assumptions, which are primarily appropriate for relatively simple structures. Therefore a full-scale validation of dynamic behavior of buildings undergoing wind excitations is important.

1.1 Methodology

In this paper a 3-D model ion staad pro has been developed to analyze the behavior of reinforced concrete tall building structure building under wind loads. This paper explain briefly also the effect of wind loads on the structures for the study between wind effects on RCC framed building. Importance factor of building and finally soil factor were talking into considerations and there effects on the performance of tall buildings were discussed. Our purpose is to analyse & design both the structure & study the effect on foundation & as well as the effect on costing of material for construction purpose. The model has been designed for 30 storied building & this comparison will guide us in choosing the type of structure for a 120m height building.

1.2 STAAD MODEL FOR CONCRETE STRUCTURE

2. LOAD PARAMETERS

Dead Load

- SELF WEIGHT OF BEAM & COLUMNS OF STRUCTURE
- SELF WEIGHT OF RCC SLAB
- BRICK WALL LOAD

Live Load

2 KG/ m2 AS PER IS 875 PART II

Wind Load

- AS PER IS 875 PART III
- BASIC WIND SPEED : 50 M/SEC
- PROBABILITY FACTOR (RISK CO-EFFICIENT) : K1 = 1.08

- TERRAIN,HEIGHT AND STRUCTURE SIZE FACTOR :

K2 =

0.91	From 0 to	10.00	M.
0.97	From 10 to	15.00	M.
1.01	From 15 to	20.00	M.
1.06	From 20 to	30.00	M.
1.06	From 30 to	31.50	M.

TOPOGRAPHY FACTOR : K3 = 1

LOAD COMBINATIONS

DEAD LOAD + LIVE LOAD

DEAD LOAD + LIVE LOAD + WIND LOAD

DEAD LOAD + WIND LOAD

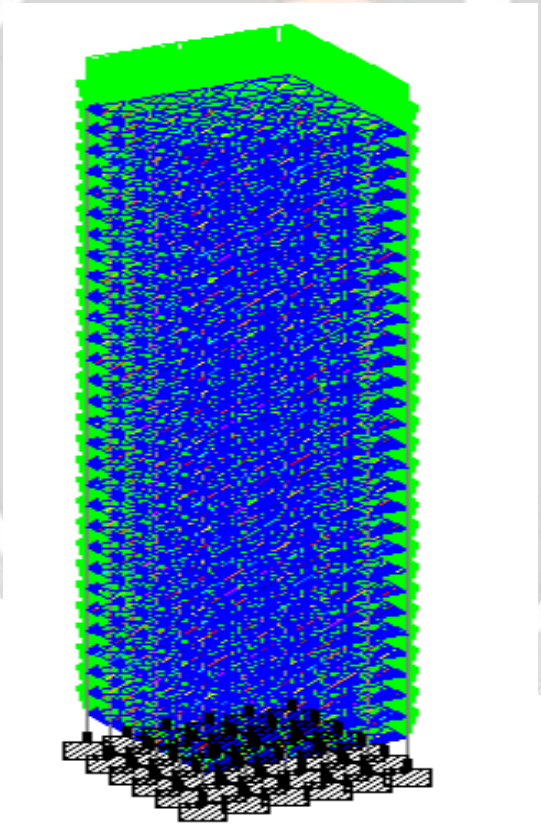
2.1 DATA REQUIRED FOR THE ANALYSIS OF THE FRAME.

Type of structure	multi-storey fixed jointed plane frame
BUILDING TYPE	RENFORCED CONCRETE FRAME
Usage	Comarsial apartment
Location	Bhopal, Indore M.P.
Number of stories	Open Ground + 30
Plan dimensions	20mX20m
Building height	120m
Floor height	3.5m
No of bays and bay length	4nos,4 m each.
Imposed load	2 kn/m2
floor and	1.5 kn/m2 on roof.
Materials Concrete	M 30
Reinforcement	fe415
Size of column	0.70m×0.65m
Size of beam	.60m×.55m

Depth of slab	150 mm thick
Specific weight of RCC	25kn/m3.
Specific weight of infill	19.2 kn/m3
Type of soil	Medium soil.
Response spectra	As per IS 1893.
wind zone	zone 50m/s

Table:1 Data Description

2.2 Application of DEAD LOAD & LIVE LOAD



Dead Load & Live Load has been applied on the structures. Load of floor slab has been applied as Floor Load & Brick Wall Load has been applied as member Load. Self Weight of the structure also being applied.

3. Application of wind load along +X direction

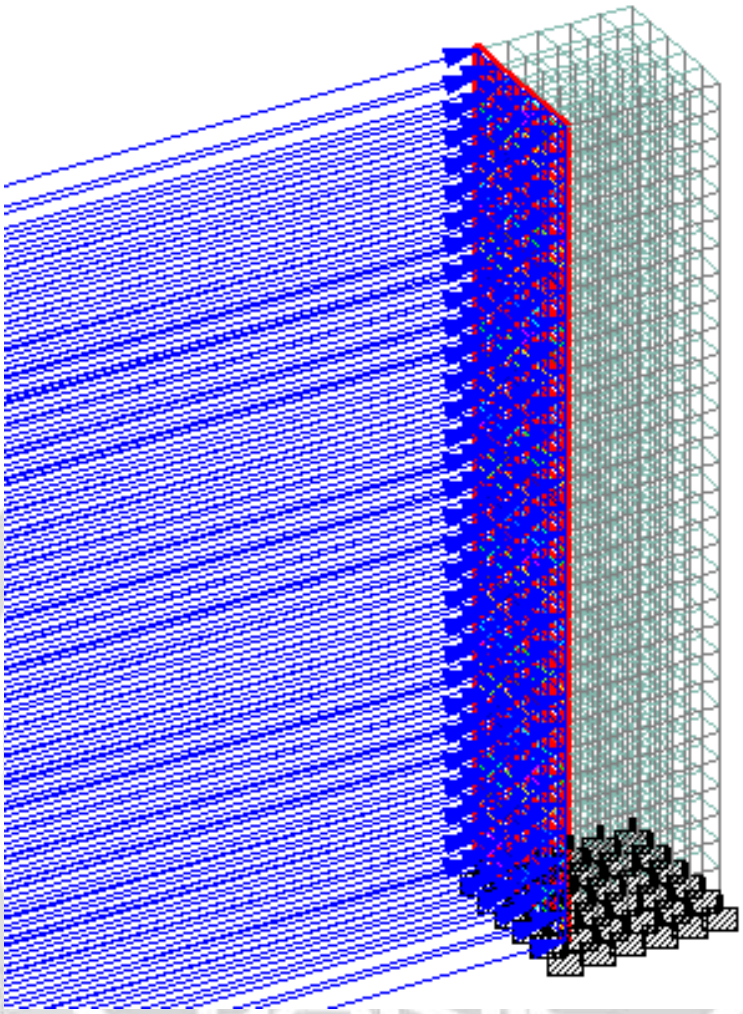


FIG: Wind load In X Direction

Wind Load has been calculated in pressure co-efficient method for cladded building. On the basis of the intensity & influence area of the wind the wind load has been applied as member load on the structure

3.1 Application of wind load along -X direction

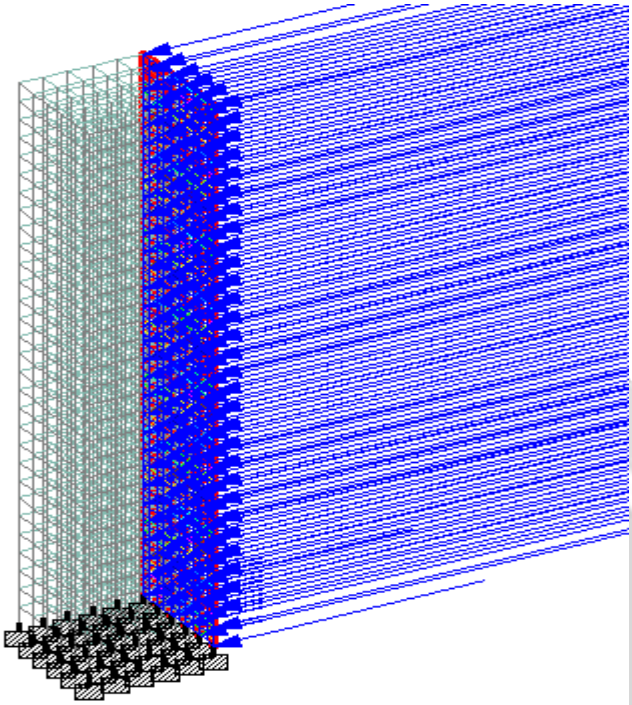


FIG: Wind load in –X Direction

Wind Load has been calculated in pressure co-efficient method for cladded building. On the basis of the intensity & influence area of the wind the wind load has been applied as member load on the structure

Application of wind load along +Z direction

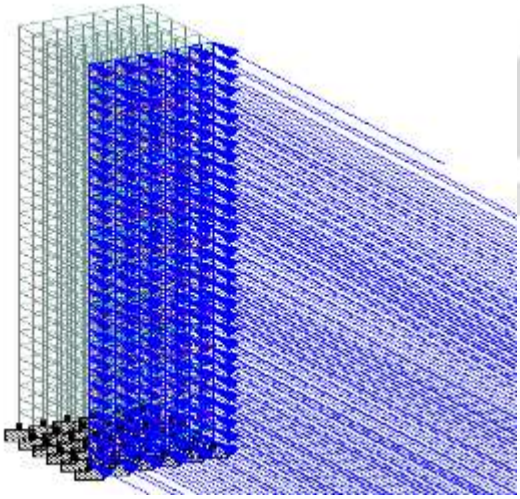


FIG: Wind load in +Z Direction

Wind Load has been calculated in pressure co-efficient method for cladded building. On the basis of the intensity & influence area of the wind the wind load has been applied as member load on the structure

Application of wind load along -Z direction

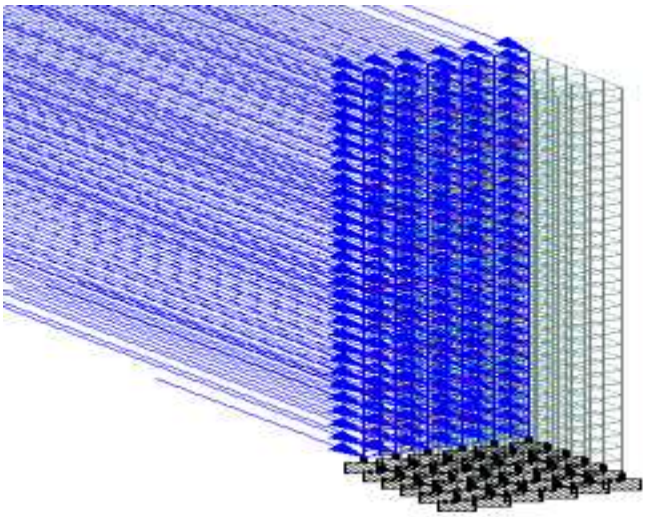


FIG: Wind load in -Z Direction

Wind Load has been calculated in pressure co-efficient method for cladded building. On the basis of the intensity & influence area of the wind the wind load has been applied as member load on the structure

Graphical Representation of Displacement on Structure

Wind Load on RCC Structure

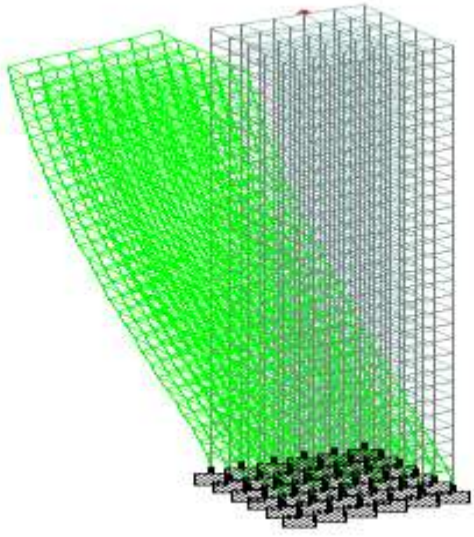


FIG: Displacement In X direction

Above Displacement diagram shows the effect on the RCC structure when wind load is applied on the structure at +X direction.

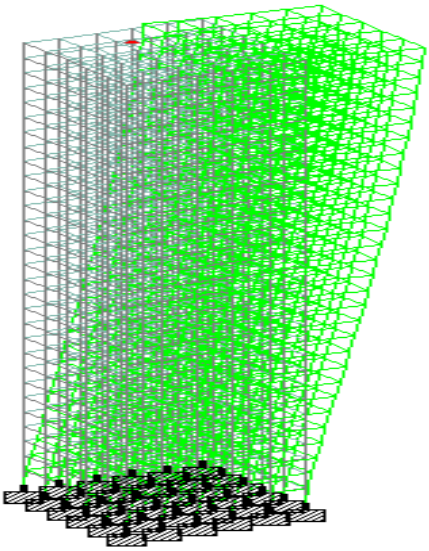


FIG: Displacement In -X direction

Above Displacement diagram shows the effect on the RCC structure when wind load is applied on the structure at -X direction.

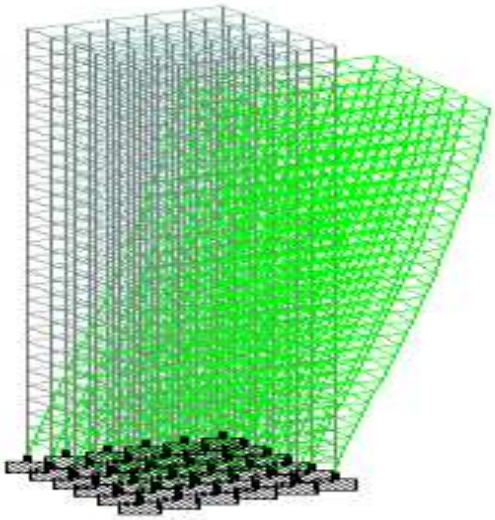


FIG: Displacement In Z direction

Above Displacement diagram shows the effect on the RCC structure when wind load is applied on the structure at +z direction.

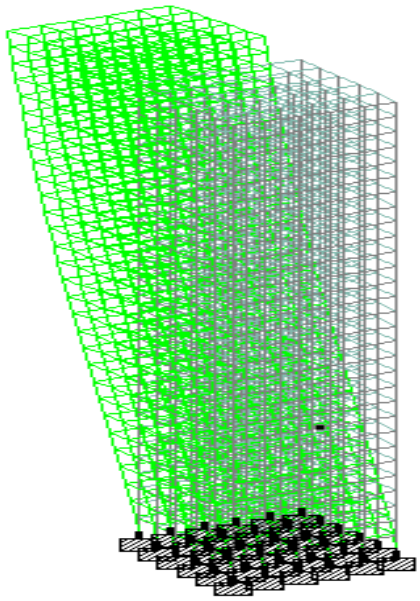


FIG: Displacement In -Z direction

Above Displacement diagram shows the effect on the RCC structure when wind load is applied on the structure at -z direction.

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 3
LOADTYPE WIND TITLE X

CENTER OF FORCE BASED ON X FORCES ONLY (METE).(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)
X = 0.000000000E+00
Y = 0.552447530E+02
Z = 0.100000003E+02

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 3)
SUMMATION FORCE-X = 3443.10
SUMMATION FORCE-Y = 0.00
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 0.00 MY= 34430.97 MZ= -190213.05
STAAD SPACE -- PAGE NO. 1770

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 3)
SUMMATION FORCE-X = -3443.10
SUMMATION FORCE-Y = 0.00
SUMMATION FORCE-Z = -0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -0.00 MY= -34430.97 MZ= 190213.06

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 3)

	MAXIMUM	AT NODE
X	8.06291E+00	1093
Y	-4.21277E-01	954
Z	-3.76139E-04	42
RX	6.40336E-06	103
RY	4.10351E-06	42
RZ	-8.29951E-04	355

Table:2 Maximun displacement

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (KN METE)-

JT	EXT FX	EXT FY	EXT FZ	EXT MX	EXT MY	EXT MZ	INT FX	INT FY	INT FZ	INT MX	INTT MY	INT MZ
1	4.37	0	0	0	0	0	76.51	1225.25	1.18	1.48	0.15	-207.31
2	0	0	0	0	0	0	101	41.52	0.03	0.04	-0.02	-234.53
3	0	0	0	0	0	0	101.14	117.87	-0.01	-0.04	-0.05	-23.7
4	0	0	0	0	0	0	101.04	-117.9	-0.05	-0.09	-0.05	-234.56
5	0	0	0	0	0	0	100.04	-415.62	-0.09	-0.16	0.01	-233.92
6	0	0	0	0	0	0	7.05	-1225.1	-1.21	-1.56	0.31	-206.35
7	8.75	0	0	0	0	0	78.58	1250.81	0.16	0.28	0.02	-210
8	0	0	0	0	0	0	103.78	417.58	0.02	0.02	0.01	-237.79
9	0	0	0	0	0	0	103.77	119.26	-0.02	-0.04	0	-237.77
10	0	0	0	0	0	0	103.65	-119.33	-0.03	-0.05	0.01	-237.54
11	0	0	0	0	0	0	103.41	-417.67	-0.06	-0.1	0.03	-237.08
12	0	0	0	0	0	0	78.02	-1250.6	-0.17	-0.3	0.05	-208.84
13	0	0	0	0	0	0	103.93	419.4	0.01	0.01	0	-238.07
14	0	0	0	0	0	0	103.9	119.81	-0.01	-0.01	0	-238
15	0	0	0	0	0	0	10178	-119.88	-0.01	-0.02	0	-237.75
16	0	0	0	0	0	0	103.54	-419.49	-0.02	-0.04	0.01	-237.31
17	0	0	0	0	0	0	78.16	-1253.6	-0.06	-0.11	0.01	-209.08
18	0	0	0	0	0	0	78.73	1253.77	-0.06	-0.1	-0.01	-210.26
19	0	0	0	0	0	0	103.93	419.4	-0.01	-0.01	0	-238.07
20	0	0	0	0	0	0	10390	119.81	0.01	0.01	0	-238
21	0	0	0	0	0	0	103.78	-119.88	0.01	0.02	0	-237.75
22	0	0	0	0	0	0	103.54	-419.49	0.02	0.04	-0.01	-237.31
23	0	0	0	0	0	0	78.16	-1253.6	0.06	0.11	-0.01	-209.08
24	0	0	0	0	0	0	78.58	1250.81	-0.16	-0.28	-0.02	-210
25	0	0	0	0	0	0	103.78	417.58	-0.02	-0.02	-0.01	-237.79
26	0	0	0	0	0	0	103.77	119.26	0.02	0.04	0	-237.77
27	0	0	0	0	0	0	103.65	-119.33	0.03	0.05	-0.01	-237.54
28	0	0	0	0	0	0	103.41	-417.67	0.06	0.1	-0.03	-237.08

29	0	0	0	0	0	0	78.02	-1250.6	0.17	0.3	-0.05	-208.84
30	0	0	0	0	0	0	76.51	1225.25	-1.18	-1.48	-0.15	-20731
31	0	0	0	0	0	0	101	412.52	-0.03	-0.04	0.02	-234.53
32	0	0	0	0	0	0	101.14	117.87	0.01	0.04	0.05	-234.76
33	0	0	0	0	0	0	101.04	-117.96	0.05	0.09	0.05	-234.56
34	0	0	0	0	0	0	100.68	-412.62	0.09	0.16	-0.01	-233.92
35	0	0	0	0	0	0	76.05	-1225.1	1.21	1.56	-31	-206.35

Table:1 Joint load on x direction

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO4LOAD TYPE WIND TITLE -X

CENTER OF FORCE BASED ON X FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)
X = 0.200000007E+02
Y = 0.552447530E+02
Z = 0.100000003E+02
STAAD SPACE -- PAGE NO. 1772

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 4)
SUMMATION FORCE-X = -3443.10
SUMMATION FORCE-Y = 0.00
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 0.00 MY= -34430.97 MZ= 190213.05

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 4)
SUMMATION FORCE-X = 3443.10
SUMMATION FORCE-Y = -0.00
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 0.00 MY= 34430.97 MZ= -190213.06

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 4)

	MAXIMUM	AT NODE
X	-8.06291E+00	1098
Y	-4.21277E-01	949
Z	-3.76139E-04	37
RX	6.40336E-06	108
RY	-4.10351E-06	37
RZ	8.29951E-04	360

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (KN METE)-

JT	EXT FX	EXT FY	EXT FZ	EXT MX	EXT MY	EXT MZ	INT FX	INT FY	INT FZ	INT MX	INTT MY	INT MZ
1	0	0	0	0	0	0	-76.05	-1225.1	-1.21	-1.56	-0.31	203.35
2	0	0	0	0	0	0	-100.7	-412.62	-0.09	-0.166	-0.01	233.92
3	0	0	0	0	0	0	-101	-117.96	-0.05	-0.09	0.05	234.56
4	0	0	0	0	0	0	-101.1	117.87	-0.01	-0.04	0.05	234.76
5	0	0	0	0	0	0	-101	412.52	0.03	0.04	0.02	234.53
6	0	0	0	0	0	0	-76.51	1225.25	1.18	1.48	-0.15	207.31
7	0	0	0	0	0	0	-78.02	-1250.6	-0.17	-0.3	-0.05	208.84
8	0	0	0	0	0	0	-103.4	-417.67	-0.06	-0.1	-0.03	237.08
9	0	0	0	0	0	0	-103.7	-119.33	-0.03	-0.05	-0.01	237.54
10	0	0	0	0	0	0	-103.8	119.26	-0.02	-0.04	0	237.77
11	0	0	0	0	0	0	-103.8	417.58	0.02	0.02	-0.01	237.79
12	0	0	0	0	0	0	-78.58	1250.81	0.16	0.28	-0.02	210
13	0	0	0	0	0	0	-78.16	-1253.6	-0.06	0.011	0.01	209.08
14	0	0	0	0	0	0	-103.5	-419.49	-0.02	-0.04	-0.01	237.31
15	0	0	0	0	0	0	-103.8	-119.8	-0.01	-0.05	0	237.78
16	0	0	0	0	0	0	-103.9	119.81	-0.01	-0.01	0	238
17	0	0	0	0	0	0	-103.9	119.81	-0.01	-0.01	0	238
18	0	0	0	0	0	0	-103.9	419.4	0.01	0.1	0	238.07
19	0	0	0	0	0	0	-78.73	1253.77	0.06	0.1	-0.01	210.26
20	0	0	0	0	0	0	-78.16	-1253.6	0.06	0.11	0.01	209.08
21	0	0	0	0	0	0	-103.5	-419.49	0.02	0.04	0.01	237.75
22	0	0	0	0	0	0	-103.9	119.81	0.01	0.01	0	238
23	0	0	0	0	0	0	-103.9	419.4	-0.01	-0.1	0	238.07
24	-8.75	0	0	0	0	0	-78.73	1253.77	-0.06	-0.1	0.01	210.266
25	0	0	0	0	0	0	-78.02	-1250.6	0.17	0.3	0.05	208.84
26	0	0	0	0	0	0	-103.4	-417.67	0.066	0.1	0.03	237.08
27	0	0	0	0	0	0	-103.7	-119.33	0.03	0.05	0.01	237.54
28	0	0	0	0	0	0	-103.8	119.226	0.02	0.04	0	237.77
29	0	0	0	0	0	0	-103.8	417.58	-0.02	-0.02	0.01	210
30	0	0	0	0	0	0	-100.7	-415.6	0.09	0.16	0.01	233.92
31	0	0	0	0	0	0	-101.4	-117.96	0.05	0.09	-0.05	234.56
32	0	0	0	0	0	0	-100.7	-415.62	0.09	0.16	0.01	233.92
33	0	0	0	0	0	0	-101.7	-117.96	0.05	0.09	-0.05	234.56
34	0	0	0	0	0	0	-101.1	117087	0.01	0.04	-0.05	234.49
35	0	0	0	0	0	0	-101	412.52	-0.03	-0.04	-0.02	234.53
36	-4.37	0	0	0	0	0	-76.51	1225.25	-1.18	-1.48	0.15	207.31

Table:1 Joint load on -x direction

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 1
LOADTYPE DEAD TITLE LOAD CASE 1

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.100000004E+02
Y = 0.542500000E+02
Z = 0.100000004E+02

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 1)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -75000.01
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 750000.10 MY= 0.00 MZ= -750000.10

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 1)
SUMMATION FORCE-X = -0.00
SUMMATION FORCE-Y = 75000.01
SUMMATION FORCE-Z = -0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -750000.10 MY= -0.00 MZ= 750000.10

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 1)

	MAXIMUM	AT NODE
X	2.16266E-03	1081
Y	-1.26870E+00	1102
Z	2.14669E-03	1081
RX	1.33433E-04	1084
RY	1.89477E-06	1112
RZ	-1.21299E-04	1099

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (KN METE)-

JT	EXT FX	EXT FY	EXT FZ	EXT MX	EXT MY	EXT MZ	INT FX	INT FY	INT FZ	INT MX	INTT MY	INT MZ
1	0	0	0	0	0	0	-2.09	-1686.1	-2.05	-2.39	0	2.44
2	0	0	0	0	0	0	-0.9	-1898.7	-3.44	-3.94	0.01	1.1
3	0	0	0	0	0	0	-0.25	-1976.7	-3.55	-4.07	0	0.32
4	0	0	0	0	0	0	0.9	-1898.7	-3.44	-3.94	-0.01	-1.1
5	0	0	0	0	0	0	2.09	-1686.1	-2.05	-2.39	0	-2.44

6	0	0	0	0	0	0	-3.54	-1904.2	-0.87	-1.05	-0.01	4.04
7	0	0	0	0	0	0	-1.23	-2224.8	-1.16	-1.38	0	1.46
8	0	0	0	0	0	0	-0.3	-2321.1	-1.25	-1.47	0	0.37
9	0	0	0	0	0	0	0.3	-2321.1	-1.25	-1.47	0	-0.37
10	0	0	0	0	0	0	1.23	-2224.8	-1.16	-1.38	0	-1.46
11	0	0	0	0	0	0	3.54	-1904.6	-0.87	-1.05	0.01	-4.04
12	0	0	0	0	0	0	-3.64	-1985.6	-0.25	-0.31	0	4.16
13	0	0	0	0	0	0	-1.31	-2323.8	-0.29	-0.36	0	1.55
14	0	0	0	0	0	0	-0.33	-2428.6	-0.32	-0.38	0	-0.4
14	0	0	0	0	0	0	-0.33	-2428.6	-0.32	-0.38	0	-0.4
15	0	0	0	0	0	0	1.31	-2323.8	-0.29	-0.36	0	-1.55
16	0	0	0	0	0	0	3.64	-1985.6	-0.25	0.31	0	-4.16
17	0	0	0	0	0	0	-3.64	-1985.6	0.25	0.31	0	4.16
18	0	0	0	0	0	0	-1.31	-233.79	0.29	0.36	0	1.55
19	0	0	0	0	0	0	-0.33	-2428.6	0.32	0.38	0	0.4
20	0	0	0	0	0	0	0.33	-2428.6	0.32	0.38	0	-0.4
21	0	0	0	0	0	0	1.31	-2323.7	0.29	0.36	0	-1.55
22	0	0	0	0	0	0	3.64	-1985.6	0.25	0.32	0	-4.16
23	0	0	0	0	0	0	3.54	-1904.6	0.87	1.05	0.01	4.04
24	0	0	0	0	0	0	-1.23	-2E+06	1.166	1.38	0	1.46
25	0	0	0	0	0	0	-0.3	-2E+06	1.25	1.47	0	0.37
26	0	0	0	0	0	0	0.3	-2321.1	1.25	1.47	0	-0.37
27	0	0	0	0	0	0	1.23	-2224.8	1.16	1.38	0	-1.46
28	0	0	0	0	0	0	3.54	-1904.6	0.87	1.05	0.01	-1.04
29	0	0	0	0	0	0	-2.09	-1686.1	2.05	2.39	0	2.44
30	0	0	0	0	0	0	-0.9	-1898.7	3.44	3.94	-0.01	1.1
31	0	0	0	0	0	0	-0.25	-1976.7	3.55	4.07	0	0.32
32	0	0	0	0	0	0	0.25	-1976.7	3.55	4.07	0	-0.32
33	0	0	0	0	0	0	0.9	-1898.7	3.44	3.94	0.01	-1.1
34	0	0	0	0	0	0	2.09	-1686.1	2.05	2.39	0	-2.44

Table:1 Joint load on Y direction

CENTER OF FORCE BASED ON Z FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.100000003E+02
Y = 0.552447530E+02
Z = 0.000000000E+00

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 5)
SUMMATION FORCE-X = 0.00

SUMMATION FORCE-Y = 0.00
SUMMATION FORCE-Z = 3443.10

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 190213.05 MY= -34430.97 MZ= 0.00

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 5)

SUMMATION FORCE-X	-0.00
SUMMATION FORCE-Y	0.00
SUMMATION FORCE-Z	-3443.10

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -190213.06
MY= 34430.97
MZ= 0.00

MAXIMUM DISPLACEMENTS (CM /RADIANS

	Maximum	Node
X	-3.70012E-04	67
Y	-4.21910E-01	969
Z	8.30777E+00	1084
RX	8.45852E-04	330
RY	-4.06249E-06	67
RZ	5.79904E-06	-78

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (KN METE)-

JT	EXT FX	EXT FY	EXT FZ	EXT MX	EXT MY	EXT MZ	INT FX	INT FY	INT FZ	INT MX	INTT MY	INT MZ
1	0	0	4.37	0	0	0	1.25	1233.32	76.62	199.93	-0.15	-1.58
2	0	0	8.75	0	0	0	0.7	1257.87	78.62	202.5	-0.02	-0.31
3	0	0	8.75	0	0	0	0.07	1260.72	78.75	202.74	-0.01	-0.11
4	0	0	8.75	0	0	0	-0.07	1260.72	78.75	202.74	0.01	0.11
5	0	0	8.75	0	0	0	-0.17	1257.87	78.62	202.5	0.02	0.31
6	0	0	4.37	0	0	0	-1.25	1233.32	76.62	199.93	0.15	1.58
7	0	0	0	0	0	0	0.01	405.18	101.13	227.37	0.02	-0.02
8	0	0	0	0	0	0	0.02	409.54	103.79	230.49	-0.01	-0.02
9	0	0	0	0	0	0	0.01	411.23	103.93	230.74	0	-0.01
10	0	0	0	0	0	0	-0.01	411023	103.93	230.74	0	0.01
11	0	0	0	0	0	0	-0.02	409.54	103.79	230.49	0.01	0.02
12	0	0	0	0	0	0	-0.01	405.18	1.1013	227.37	-0.02	0.02
13	0	0	0	0	0	0	-0.01	115.7	101.13	227.35	0.05	0.05

14	0	0	0	0	0	0	-0.02	117	103.58	230.23	0	0.04
15	0	0	0	0	0	0	-0.01	117.5	103.7	230.11	0	0.02
16	0	0	0	0	0	0	0.01	117.5	103.7	230.44	0	-0.02
17	0	0	0	0	0	0	0.01	117	103.58	230.23	0	-0.04
18	0	0	0	0	0	0	0.01	115.76	101.07	227.35	-0.05	-0.05
19	0	0	0	0	0	0	-0.06	-115.84	100.97	227.17	0.05	0.1
20	0	0	0	0	0	0	-0.06	-115.84	100.97	227.17	0.05	0.1
21	0	0	0	0	0	0	0.038	-117.06	103.47	230.03	-0.01	0.06
22	0	0	0	0	0	0	0.01	-117.06	103.58	230.22	0	-0.02
23	0	0	0	0	0	0	0.03	-117.06	103.47	230.03	0.01	-0.06
24	0	0	0	0	0	0	0.06	-115.84	100.97	227.17	0.05	-0.1
25	0	0	0	0	0	0	-0.08	-405.28	100.85	226.82	-0.01	0.16
26	0	0	0	0	0	0	-0.06	-409.63	103.46	229.86	-0.03	0.1
27	0	0	0	0	0	0	-0.02	411.32	103.58	230.06	-0.01	0.04
28	0	0	0	0	0	0	0.02	-411.32	103.58	230.6	0.01	-0.04
29	0	0	0	0	0	0	0.06	-409.63	103.46	229.86	0.03	-0.1
30	0	0	0	0	0	0	0.08	-405.28	100.85	226.82	0.01	-0.16
31	0	0	0	0	0	0	-1.29	-1233.2	76.2	199.08	-0.31	1.67
32	0	0	0	0	0	0	-0.19	-1257.7	78.12	201.48	-0.05	0.34
33	0	0	0	0	0	0	-0.07	-1260.6	78024	201.69	-0.01	0.12
34	0	0	0	0	0	0	0.07	-1260.6	78024	201.69	0.01	-0.12
35							0.19	-1257.7	78.12	201.48	0.05	-0.34
36	0	0	0	0	0	0	1.29	-1233.2	76.2	199.08	0.31	-1.67

Table:1 Joint load on z direction

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 6
LOADTYPE WIND TITLE -Z

CENTER OF FORCE BASED ON Z FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.100000003E+02
Y = 0.552447530E+02
Z = 0.200000007E+02

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 6)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = 0.00
SUMMATION FORCE-Z = -3443.10

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -190213.05 MY= 34430.97 MZ= 0.00

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 6)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -0.00
SUMMATION FORCE-Z = 3443.10

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 190213.06 MY= -34430.97 MZ= -0.00

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 6)

	MAXIMUM	AT NODE
X	-3.70012E-04	37
Y	-4.21910E-01	939
Z	-8.30777E+00	1114
RX	-8.45852E-04	360
RY	4.06249E-06	37
RZ	-5.79904E-06	108

EXTERNAL AND INTERNAL JOINT LOAD SUMMARY (KN METE)-

1	0	0	0	0	0	0	-0.29	-1233.2	-76.2	-199.1	0.31	1.67
2	0	0	0	0	0	0	-0.19	-1257.7	-78.12	-201.5	0.05	0.34
3	0	0	0	0	0	0	-0.07	-1260.6	-7824	-201.7	0.01	0.12
4	0	0	0	0	0	0	0.07	-1260.6	-78.24	-201.7	-0.01	-0.12
5	0	0	0	0	0	0	0.19	-1257.7	-78.12	-201.5	-0.05	-0.34
6	0	0	0	0	0	0	1.29	-1233.2	-76.2	-199.1	-0.31	-1.67
7	0	0	0	0	0	0	-0.08	-405.28	-100.9	-226.8	0.01	0.16
8	0	0	0	0	0	0	-0.06	-409.63	-103.5	-229.9	0.03	0.1
9	0	0	0	0	0	0	-0.02	-411.32	-103.6	-230.1	0.01	0.04
10	0	0	0	0	0	0	0.02	-411.32	-103.6	-230.1	-0.01	-0.04
11	0	0	0	0	0	0	0.06	-409.63	-103.5	-229.9	-0.03	-0.1
12	0	0	0	0	0	0	0.08	-405.28	-100.9	-226.8	-0.01	-0.16
13	0	0	0	0	0	0	-0.06	-115.84	-101	-22.17	-0.05	0.1
14	0	0	0	0	0	0	-0.03	-117.06	-103.5	-320	0.01	0.06
15	0	0	0	0	0	0	-0.01	-117.56	-103.6	-230.2	0	0.02
16	0	0	0	0	0	0	0.01	-117.56	-103.6	-230.2	0	-0.02
17	0	0	0	0	0	0	0.03	-117.06	-103.5	-230	-0.01	-0.06
18	0	0	0	0	0	0	0.06	-115.84	-101	-227.2	0.05	-0.1
19	0	0	0	0	0	0	-0.01	115.76	-101.1	-227.4	-0.05	0.05
20	0	0	0	0	0	0	-0.02	117	-103.6	-230.2	0	0.04
21	0	0	0	0	0	0	-0.01	117.5	-103.7	-230.4	0	-0.02
22	0	0	0	0	0	0	0.01	117.5	-103.7	-230.4	0	-0.02

23	0	0	0	0	0	0	0.02	117	-103.6	-230.2	0	-0.04
24	0	0	0	0	0	0	0.01	115.76	-101.1	-227.4	0.05	-0.05
25	0	0	0	0	0	0	0.01	405.18	-101.1	-227.4	-0.02	-0.02
26	0	0	0	0	0	0	0.02	409.54	-103.8	-230.5	0.01	-0.02
27	0	0	0	0	0	0	0.01	411.23	-103.9	-230.7	0	-0.01
28	0	0	0	0	0	0	-0.01	411.23	-103.9	-230.7	0	0.01
29	0	0	0	0	0	0	-0.02	409.54	-103.8	-230.5	-0.01	0.02
30	0	0	0	0	0	0	-0.01	405.18	-101.1	-227.4	0.02	0.02
31	0	0	-4.4	0	0	0	1.25	1233.32	-76.62	-199.9	0.15	-1.58
32	0	0	-8.8	0	0	0	0.17	1257.87	-78.62	-202.5	0.02	-0.31
33	0	0	-8.8	0	0	0	0.07	1260.72	-78.75	-202.7	-0.01	0.11
34	0	0	-8.8	0	0	0	-0.07	1260.72	-7875	-202.7	-0.01	0.11
35	0	0	-8.8	0	0	0	-0.17	1257.87	-7862	-202.5	-0.02	0.31
36	0	0	-4.4	0	0	0	-1.25	1233.32	-76.62	-199.9	-0.15	1.58

Table:1 Joint load on -Z direction

4. CONCLUSIONS

The purpose of this project was to assess the wind load in an RC frame which provi.de an batter result in M.P. Indore Bhopal region. The building under study in this project was an existing multi-storey building in Indore Bhopal Region the plan and reinforcement should be provide. I modeled the building in STAAD PRO software and applied the wind load combination to it Equivalent static procedure as per Indian Standard IS 1893:2002 (Part 1)and IS 875 was used to compute the wind force The results for first floor beams and a large sample of columns showed that a number of beams and all the foundation columns checked were found to be deficient under the applied wind load combinations. Number of beams under flexure was more than the number of beams under shear. The dcr of columns under biaxial bending gradually decreased with height, although it was greater than one in most of the cases.

For providing retrofit measures for the deficient members, concrete jacketing was found to be a suitable method for retrofitting of columns. It was also concluded that steel plating would be an efficient method of retrofitting of a number of deficient beams.the behavior of multi-storey building frames under the different winds velocity and the different the different ground slope. Considered wind load on different type of building frame have been analyzed. The results obtained from the analysis are represented by tables and graphs and also plane ground and sloping ground in degree are also compared in Tables and Graphs

5.FUTURE SCOPE OF THE STUDY

This present study considered to only wind analysis.
This analysis is done for 2D frame structures. This may extended to 3D-structures

In this study wind load considered as per BIS code 875(Part-III):1987. This same may be considered for wind load as per ASCE.

6. REFERENCES

1. IS 875 (Part III for wind load design).
2. IS 456.
3. STAAD-Pro user guide.