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Analysis of G+30 Highrise Buildings by Using Etabs for Various Frame Sections In Zone IV and Zone V

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ABSTRACT: From the ancient time we know earthquake is a disaster causing occasion. Up to date days constructions are fitting increasingly narrow and extra inclined to sway and consequently detrimental within the earthquake. Researchers and engineers have worked out within the past to make the constructions as earthquake resistant. After many functional reports it has proven that use of lateral load resisting methods in the constructing configuration has drastically increased the performance of the structure in earthquake by using ETABS 9.7.4, the work has been carried out for the distinctive instances utilizing shear wall and bracings for the exceptional heights, and maximum top regarded for the reward gain knowledge of is 93.5m. The modeling is completed to examine the outcome of special circumstances along with specific heights on seismic parameters like base shear, lateral displacements and lateral drifts. The gain knowledge of has been implemented for the Zone IV and Zone V in Soil Type II (medium soils) as targeted in IS 1893-2002.

KEYWORDS: Lateral Load Resisting techniques, Response Spectrum system, Lateral Displacements, Drifts, Time period, Base Shear, Seismic Zone, delicate soil.

I. INTRODUCTION

From a structural engineer's factor of view the tall constructing or high upward thrust constructing (HRB) may be outlined in concert that, with the aid of virtue of its top, is affected by lateral forces given that of wind or earthquake or each and every to an extent that they play an awfully major function inside the structural type. Tall constructions have involved grouping from the beginning of civilization. The Egyptian Pyramids, one of the crucial seven wonders of world, created in 2600 B.C. Amongst such old tall structures. Such structures were made for safeguard and to indicate pleasure. The system of urbanization that began with the age of industrialization remains to be ongoing in setting up nations like India. Industrialization motives migration of contributors to urban centers wherever job opportunities are critical.. Rising the structural techniques of tall structures will management their dynamic response. A tall building can be outlined as a constructing whose design is dominated via the lateral forces prompted given that of wind and earthquake. On the ways aspect ten experiences, the lateral flow begins dominant the seam, the stiffness rather of force turns into the dominant problem. Fully distinctive structural forms of tall structures could also be accustomed strengthen the lateral stiffness and to decrease the waft index. Glide in constructing frames would be a result of flexural and shear mode contributions, given that of the column axial deformations and to the diagonal and beam deformations, severally.

Many Lateral resisting systems (comparable to introduction of body-wall, framed tube, belt truss with stabilizer, tube in tube and bundled tube programs) may be accustomed withstand the lateral plenty functioning on the constitution. This

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be taught seeks to understand the more than a few lateral techniques that have emerged and its associated structural behavior for soil kind three (i.e., smooth soil form) all advised 4 zones. The more than a few types of bracings discipline unit presented in RCC constructing mannequin at regular location to understand the suitableness of the programs with relevance the seismic motions whereas alternative properties of the structural individuals within the building are stay constants love the scale of the columns, beams, bracings and thickness of slabs. Analytical modeling is finished in ETABS 2013 application system. The most important purpose is to appraise the lateral displacements, go with the flow, Base shear and stiffness occurs by means of due to the fact the better than parameters using Response Spectrum method as per IS 1893 (part I): 2002.II.

II. LITERATURE REVIEW

As the peak of the building increases the effect of lateral hundreds (seismic and wind hundreds) emerge as very predominant. This chapter will speak about the previous work carried out on this discipline. Many researchers have studied the efficiency of RC frame with exceptional style of bracings, shear walls and so forth. One of the papers is mentioned beneath.

Dr. Okay. R. C. Reddy, Sandip A. Tupat et., al. (2014)

His research had stated that the wind hundreds and earthquake masses are estimated for a twelve storied RC framed constitution. Established on the results bought the following conclusions are made. The earthquake and wind hundreds rises with height of constitution. Wind loads are more valuable for tall structures than the earthquake loads. Constructions will have to be designed for loads obtained in each recommendation independently for important forces of wind or earthquake.

Jiang et., al (2012)

Applied a scientific examination consequences of utilizing special style of bracing method in tall metal buildings making use of the program ABAQUS. Though much of the literature is available and lots of researchers have dealt with seismic performance of building with bracing as lateral load resisting individuals in tall building. The researchers have studied on the metal bracing in RC frames and also the outriggers. Some of them dealt with extraordinary types of bracing and top-quality area of the bracings and likewise newly adopted mega brace systems.

J.P.Annie Sweetlin

With the introduction of Limit state design of structures, the safety and serviceability of the structure has accrued prime importance. The present day scenario witnesses a series of natural calamities like earthquakes, tsunamis, floods etc. Of these the most damaging and recurrent phenomena is the earthquake. The Effective design and the construction of Earthquake resistant structure has gained greater importance all over the world. In this paper the earthquake resistance of a G+20 multi-storey building is analysed using Equivalent static method with the help of E-TABS 9.7.4 software. The method includes seismic coefficient method as recommended by IS 1893:2002. The parameters studied were displacement, storey drift and storey shear.

Seismic analysis was done by using E-TABS software and successfully verified manually as per IS 1893:2002. There is increase in displacement value from bottom floor to top floor. In this type of model wind displacement is within the limits and earthquake displacement are beyond the permissible limits of the building (h/500 = 135mm). Drift is within the limits for the building (0.004 times of the height of the storey) 0.004x3.2 = 12.8mm. Earthquake Base shear is greater than Wind Base shear. Complete guideline for the use of E-TABS 9.7.4 for seismic coefficient analysis is made available by this paper.

III. PRINCIPLES OF PLANNING AND DESIGN

A notion of 24.14m×20.627m plan is taken into idea having 16×12 bays on each the sides. The excessive rise constructing (HRB) of 30 stories inside which flooring to flooring top is taken as 3m and ground to ground peak is 3.5m for all of the models. These building items area unit analyzed, mistreatment Etabs 2013 program process using Response Spectrum method as per IS 1893 (part I): 2002.

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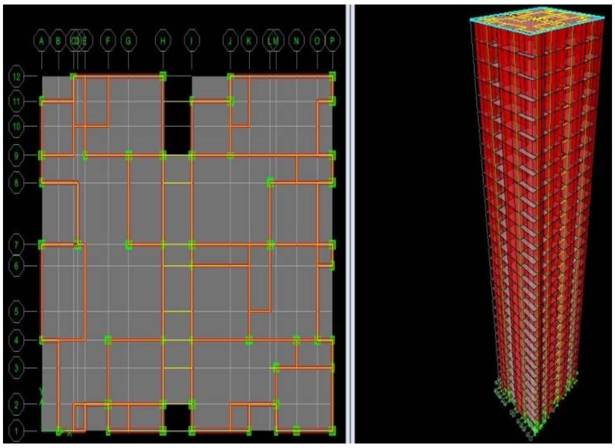
In this be taught a 30 storey building having equal plan in distinctive kind of zones (as per IS 1893 (part I): 2002) and extraordinary style of soils is taken. The tall constructing with distinctive types of braces introduce in the primary region in two bays is rememberto learn the effect of lateral deflection, base shear, bending second, shear force and axial force triggered as a result of lateral load . As a result of earth quake load (each static and dynamic loads) The place of the constructing is believed to be at distinct zones and extraordinary varieties of soils. An elevation and plan view of natural constitution.The E-TABS software is used to develop 3D model and to carry out the analysis. The lateral loads to be applied on the buildings are based on the Indian standards. The study is performed for seismic zone 4&5 as per IS 456 (Dead load, Live Load) IS 1893:2002 (Earthquake load), IS875: 1987(Wind Load).

S. No	Description Parameter			
1	Depth of foundation	3.0m		
2	Floor to Floor height	3.0 m		
3	Ground floor height	3.5 m		
4	Grade of concrete	M-30		
5	Type of steel	Fe-415		
6	Column size	Typical floors	Square columns	Rectangular columns
		0 to 11	600mmx600mm	300mmx600mm
		12 to 21	550mmx550mm	300mmx550mm
		21 to 31	500mmx500mm	300mmx500mm
7	Beam size	400mmx400mm		
8	Unit wt. of masonry wall	20 KN/m³		
9	Slab thickness	120mm		
10	External wall thickness	230mm		
11	Internal wall thickness	125mm		

Details of material and geometrical properties
Plan and Elevation of G+30 Building



G+30 building design in E-tabs

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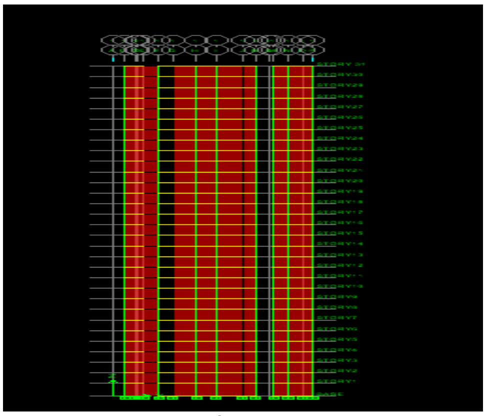

Elevation of G+30 Building

METHODS OF ANALYSIS OF STRUCTURE

In the present study, analysis of G+30 building in most severs zone for wind and earthquake forces is carried out.3D model is prepared for G+30building is in ETABS.The seismic analysis should be carried out for the buildings that have lack of resistance to earthquake forces. Seismic analysis will consider dynamic effects hence the exact analysis sometimes become complex. However for simple regular structures equivalent linear static analysis is sufficient one. This type of analysis will be carried out for regular and low rise buildings and this method will give good results for this type of buildings. Dynamic analysis will be carried out for the building as specified by code IS 1893-2002 (part1). Dynamic analysis will be carried out either by Responsepectrum method or site specific Time history method. Following methods are adopted to carry out the analysis procedure.

a. Equivalent Static Analysis
b. Response Spectrum Method
c. Time History Analysis.

LOADS ACTING ON G+30 BUILIDING

Loading on tall buildings is different from low-rise buildings in many ways such as large accumulation of gravity loads on the floors from top to bottom, increased significance of wind loading and greater Importance of dynamic effects. Thus, high rise structures need correct assessment of loads for safe and economical design. Except dead loads, the assessment of loads cannot be done accurately. Live loads can be anticipated approximately from a combination of experience and the previous field observations. Wind and earthquake loads are random in nature and it is difficult to predict them. They are estimated based on a probabilistic approach. The following discussion describes some of the most common kinds of loads on high raised structures.

a. Dead loads
b. Live loads (or) Imposed Loads
c. Gravity loads
d. Wind loads
e. Earthquake loads.

IV. RESULTS AND ANALYSIS

The next document gives a common survey of the most important ways this present day at disposal for a structural engineer when performing a seismic design of a given constitution. The methods to be discussed are the response spectrum method and the linear time-historical past analysis. The first one is generally used because it applies to the predominant part of a seismic analysis fundamental for design reason. As soon as the structural mannequin has been

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selected, it's possible to perform evaluation to examine the seismically brought about forces within the structures. There are unique ways of analysis which provide special levels of accuracy. One of the largest earthquakes of the sector has passed off in India and the earthquake engineering tendencies within the country began rather early. After the 1897 Assam earthquake a new earthquake resistant type of housing was developed which continues to be typical in the north-east India. Seismic analyses of many of the buildings are still carried out on the groundwork of lateral (horizontal drive assumed to be equivalent to the precise (dynamic) loading. The bottom shear which is the whole horizontal force on the constitution is calculated on the basis of constitution mass and essential interval of vibration and corresponding mode form.

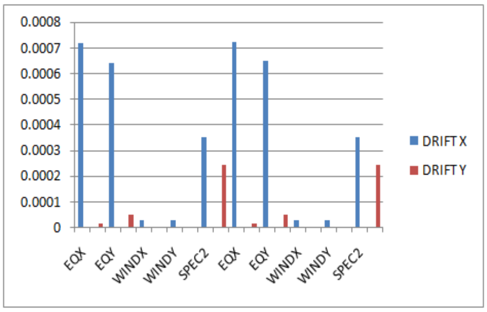
Zone V Results

Story shear

Drift x and Drift y for story 29 and 30

Story	Item	Load	DRIFT X	DRIFT Y
STORY 30	Max Drift X	EQX	0.000716	0
STORY 30	Max Drift Y	EQX	0	0.000014
STORY 30	Max Drift X	EQY	0.000642	0
STORY 30	Max Drift Y	EQY	0	0.000049
STORY 30	Max Drift X	WINDX	0.000027	0
STORY 30	Max Drift Y	WINDX	0	0.000001
STORY 30	Max Drift X	WINDY	0.000027	0
STORY 30	Max Drift Y	WINDY	0	0.000001
STORY 30	Max Drift X	SPEC2	0.000349	0
STORY 30	Max Drift Y	SPEC2	0	0.000241
STORY29	Max Drift X	EQX	0.000722	0
STORY29	Max Drift Y	EQX	0	0.000013
STORY29	Max Drift X	EQY	0.000647	0
STORY29	Max Drift Y	EQY	0	0.000048
STORY29	Max Drift X	WINDX	0.000027	0
STORY29	Max Drift Y	WINDX	0	0.000001
STORY29	Max Drift X	WINDY	0.000027	0
STORY29	Max Drift Y	WINDY	0	0.000001
STORY29	Max Drift X	SPEC2	0.000352	0
STORY29	Max Drift Y	SPEC2	0	0.000243

Graph



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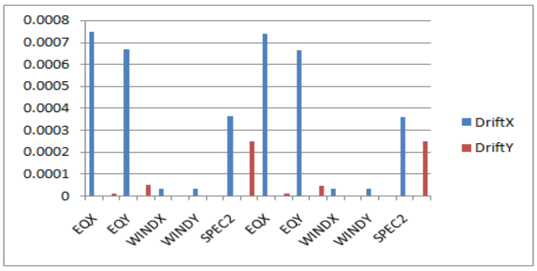
For story 20 and 19

Story	Item	Load	DriftX	DriftY
STORY20	Max Drift X	EQX	0.000745	0
STORY20	Max Drift Y	EQX	0	0.000011
STORY20	Max Drift X	EQY	0.000667	0
STORY20	Max Drift Y	EQY	0	0.000047
STORY20	Max Drift X	WINDX	0.000029	0
STORY20	Max Drift Y	WINDX	0	0
STORY20	Max Drift X	WINDY	0.000029	0
STORY20	Max Drift Y	WINDY	0	0
STORY20	Max Drift X	SPEC2	0.000361	0
STORY20	Max Drift Y	SPEC2	0	0.000248
STORY19	Max Drift X	EQX	0.00074	0
STORY19	Max Drift Y	EQX	0	0.00001
STORY19	Max Drift X	EQY	0.000662	0
STORY19	Max Drift Y	EQY	0	0.000046
STORY19	Max Drift X	WINDX	0.000029	0
STORY19	Max Drift Y	WINDX	0	0
STORY19	Max Drift X	WINDY	0.000029	0
STORY19	Max Drift Y	WINDY	0	0
STORY19	Max Drift X	SPEC2	0.000357	0
STORY19	Max Drift Y	SPEC2	0	0.000246

Graph



For Story 10 and 9

Story	Item	Load	DriftX	DriftY
STORY10	Max Drift X	EQX	0.000572	0
STORY10	Max Drift Y	EQX	0	0.000006
STORY10	Max Drift X	EQY	0.000507	0
STORY10	Max Drift Y	EQY	0	0.000036
STORY10	Max Drift X	WINDX	0.000024	0
STORY10	Max Drift Y	WINDX	0	0
STORY10	Max Drift X	WINDY	0.000024	0
STORY10	Max Drift Y	WINDY	0	0
STORY10	Max Drift X	SPEC2	0.000275	0
STORY10	Max Drift Y	SPEC2	0	0.000187
STORY9	Max Drift X	EQX	0.000538	0
STORY9	Max Drift Y	EQX	0	0.000005
STORY9	Max Drift X	EQY	0.000475	0
STORY9	Max Drift Y	EQY	0	0.000034
STORY9	Max Drift X	WINDX	0.000023	0
STORY9	Max Drift Y	WINDX	0	0
STORY9	Max Drift X	WINDY	0.000023	0
STORY9	Max Drift Y	WINDY	0	0
STORY9	Max Drift X	SPEC2	0.000259	0
STORY9	Max Drift Y	SPEC2	0	0.000177

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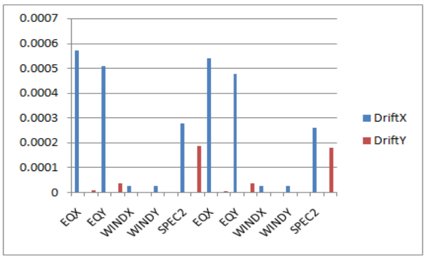
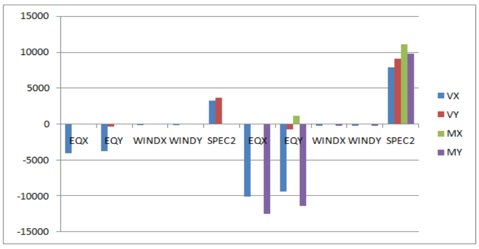
Graph



Story shear
For story 30 and 29
Top

Story	Load	Loc	VX	VY	MX	MY
STORY 30	EQX	Top	-4022.26	0	0	0
STORY 30	EQY	Top	-3721.14	-301.12	0	0
STORY 30	WINDX	Top	-88.26	0	0	0
STORY 30	WINDY	Top	-88.26	0	0	0
STORY 30	SPEC2	Top	3265.15	3680.45	0	0
STORY29	EQX	Top	-10078.3	0	0	-12498.8
STORY29	EQY	Top	-9332.09	-746.24	1119.357	-11379.4
STORY29	WINDX	Top	-263.97	0	0	-264.785
STORY29	WINDY	Top	-263.97	0	0	-264.785
STORY29	SPEC2	Top	7896.4	9108.86	11041.36	9795.461

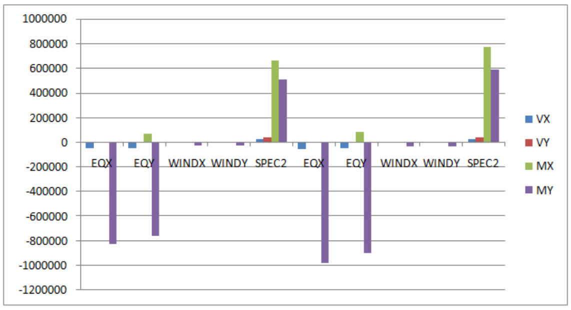
Graph



For story 20 and 19
Top

Story	Load	Loc	VX	VY	MX	MY
STORY20	EQX	Top	-50912.9	0	0	-829524
STORY20	EQY	Top	-46133.6	-4779.31	71649.14	-757875
STORY20	WINDX	Top	-1790.91	0	0	-25931.6
STORY20	WINDY	Top	-1790.91	0	0	-25931.6
STORY20	SPEC2	Top	27127.06	37863.2	661633.2	511146.8
STORY19	EQX	Top	-54148.3	0	0	-982703
STORY19	EQY	Top	-48920.8	-5227.43	86207.56	-896496
STORY19	WINDX	Top	-1954.6	0	0	-31304.3
STORY19	WINDY	Top	-1954.6	0	0	-31304.3
STORY19	SPEC2	Top	28111.65	39737.06	771902.4	587748.7

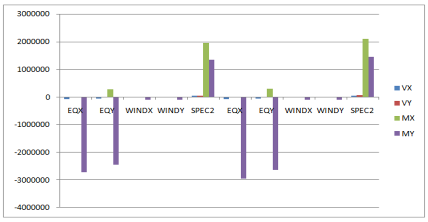
Graph



For story 10 and 9
Top

Story	Load	Loc	VX	VY	MX	MY
STORY10	EQX	Top	-74481.8	0	0	-2723916
STORY10	EQY	Top	-65221.3	-9260.5	277729.5	-2446186
STORY10	WINDX	Top	-3359.1	0	0	-101260
STORY10	WINDY	Top	-3359.1	0	0	-101260
STORY10	SPEC2	Top	39175.11	54646.52	1941652	1346347
STORY9	EQX	Top	-75980.5	0	0	-2947802
STORY9	EQY	Top	-66271.9	-9708.62	305731.5	-2642071
STORY9	WINDX	Top	-3505.25	0	0	-111337
STORY9	WINDY	Top	-3505.25	0	0	-111337
STORY9	SPEC2	Top	40639.48	56179.04	2089516	1441853

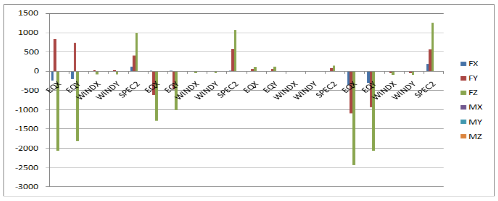
Graph



Support reactions

Story	Point	Load	FX	FY	FZ	MX	MY	MZ
BASE	1	EQX	-242.03	833.15	-2067.36	0	0	-0.297
BASE	1	EQY	-206.58	735.61	-1823.18	0	0	-0.331
BASE	1	WINDX	-9.75	35.74	-88.02	0	0	-0.002
BASE	1	WINDY	-9.75	35.74	-88.02	0	0	-0.002
BASE	1	SPEC2	115.5	400.91	988.5	0	0	0
BASE	2	EQX	14.05	-619.37	-1277.57	0	0	2.286
BASE	2	EQY	14.8	-482.35	-1010.82	0	0	1.14
BASE	2	WINDX	1.29	-20.82	-43.88	0	0	0.004
BASE	2	WINDY	1.29	-20.82	-43.88	0	0	0.004
BASE	2	SPEC2	15.5	572.3	1062.8	0	0	0
BASE	3	EQX	-9.45	60.38	103.19	0	0	2.157
BASE	3	EQY	-4.61	61.97	114.14	0	0	0.406
BASE	3	WINDX	0.02	2.24	3.89	0	0	0
BASE	3	WINDY	0.02	2.24	3.89	0	0	0
BASE	3	SPEC2	0.18	85.17	144.71	0	0	0
BASE	4	EQX	-359.9	-1095.55	-2432.58	0	0	1.918
BASE	4	EQY	-298.44	-935.12	-2057.65	0	0	0.588
BASE	4	WINDX	-14.84	-48.26	-106.51	0	0	0
BASE	4	WINDY	-14.84	-48.26	-106.51	0	0	0
BASE	4	SPEC2	181.28	567.28	1259.02	0	0	0

Graph



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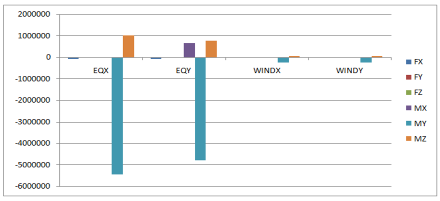
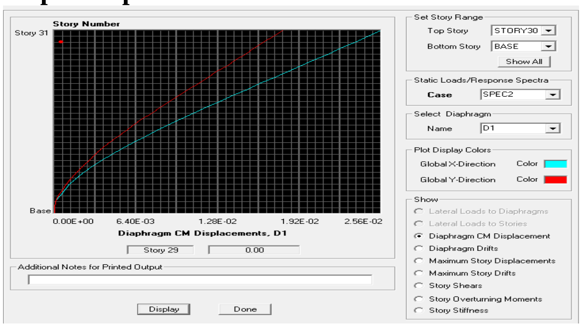
Summation

Point	Load	FX	FY	FZ	MX	MY	MZ
0, 0, Base	EQX	-90535.4	-2905.8	0	10170.31	-5446048	1014154
0, 0, Base	EQY	-77900.3	-10591.9	0	653963	-4784934	779858.5
0, 0, Base	WINDX	-4194.47	-116.37	0	407.286	-235036	46581.54
0, 0, Base	WINDY	-4194.47	-116.37	0	407.286	-235036	46581.54

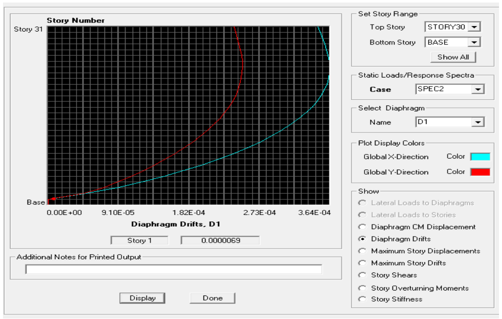
Graph



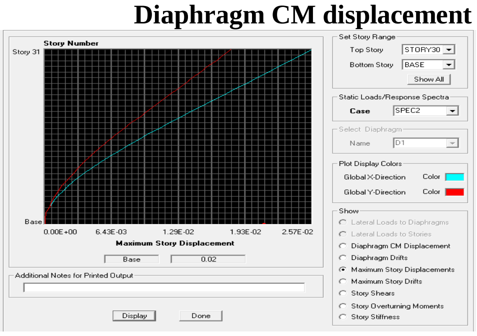
Response spectrum:



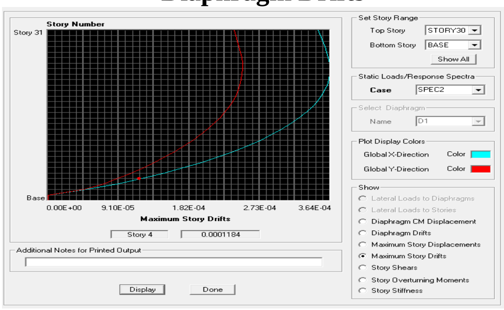
Diaphragm CM displacement



Diaphragm Drifts

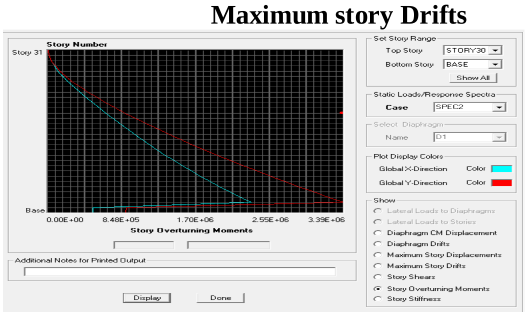


Maximum story displacements



Maximum story Drifts

Story shear



Story overturning moment

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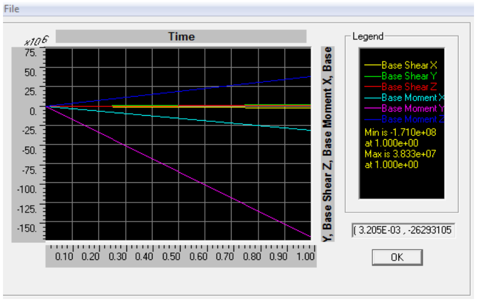
Time history Analysis:

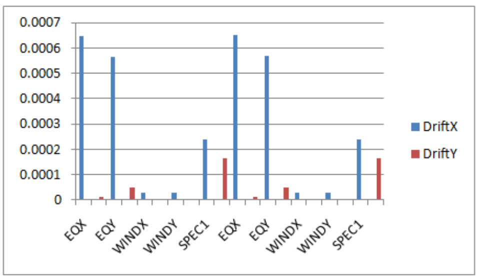


Base Shear X, Y&Z
Base Moment X, Y&Z

Zone IV Results:
Story drift x for story 30 and 29

Story	Item	Load	DriftX	DriftY
STORY 30	Max Drift X	EQX	0.000646	0
STORY 30	Max Drift Y	EQX	0	0.000012
STORY 30	Max Drift X	EQY	0.000565	0
STORY 30	Max Drift Y	EQY	0	0.00005
STORY 30	Max Drift X	WINDX	0.00003	0
STORY 30	Max Drift Y	WINDX	0	0.000001
STORY 30	Max Drift X	WINDY	0.00003	0
STORY 30	Max Drift Y	WINDY	0	0.000001
STORY 30	Max Drift X	SPEC1	0.000237	0
STORY 30	Max Drift Y	SPEC1	0	0.000164
STORY29	Max Drift X	EQX	0.000651	0
STORY29	Max Drift Y	EQX	0	0.000012
STORY29	Max Drift X	EQY	0.00057	0
STORY29	Max Drift Y	EQY	0	0.00005
STORY29	Max Drift X	WINDX	0.00003	0
STORY29	Max Drift Y	WINDX	0	0.000001
STORY29	Max Drift X	WINDY	0.00003	0
STORY29	Max Drift Y	WINDY	0	0.000001
STORY29	Max Drift X	SPEC1	0.000239	0
STORY29	Max Drift Y	SPEC1	0	0.000166

Graph



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(An ISO 3297: 2007 Certified Organization)

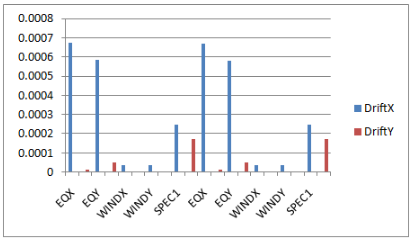
Website: www.ijirset.com

Vol. 6, Issue 7, July 2017

For story 20 and 19

Story	Item	Load	DriftX	DriftY
STORY20	Max Drift X	EQX	0.000671	0
STORY20	Max Drift Y	EQX	0	0.000009
STORY20	Max Drift X	EQY	0.000585	0
STORY20	Max Drift Y	EQY	0	0.000049
STORY20	Max Drift X	WINDX	0.000031	0
STORY20	Max Drift Y	WINDX	0	0
STORY20	Max Drift X	WINDY	0.000031	0
STORY20	Max Drift Y	WINDY	0	0
STORY20	Max Drift X	SPEC1	0.000245	0
STORY20	Max Drift Y	SPEC1	0	0.000169
STORY19	Max Drift X	EQX	0.000666	0
STORY19	Max Drift Y	EQX	0	0.000009
STORY19	Max Drift X	EQY	0.000581	0
STORY19	Max Drift Y	EQY	0	0.000049
STORY19	Max Drift X	WINDX	0.000031	0
STORY19	Max Drift Y	WINDX	0	0
STORY19	Max Drift X	WINDY	0.000031	0
STORY19	Max Drift Y	WINDY	0	0
STORY19	Max Drift X	SPEC1	0.000243	0
STORY19	Max Drift Y	SPEC1	0	0.000168

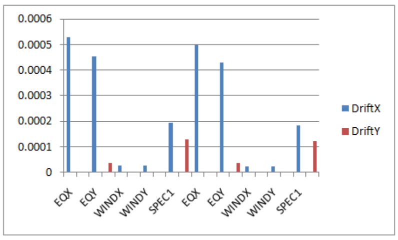
Graph



For story 10 and 9

Story	Item	Load	DriftX	DriftY
STORY10	Max Drift X	EQX	0.000527	0
STORY10	Max Drift Y	EQX	0	0.000005
STORY10	Max Drift X	EQY	0.000454	0
STORY10	Max Drift Y	EQY	0	0.000039
STORY10	Max Drift X	WINDX	0.000027	0
STORY10	Max Drift Y	WINDX	0	0
STORY10	Max Drift X	WINDY	0.000027	0
STORY10	Max Drift Y	WINDY	0	0
STORY10	Max Drift X	SPEC1	0.000193	0
STORY10	Max Drift Y	SPEC1	0	0.000131
STORY9	Max Drift X	EQX	0.000499	0
STORY9	Max Drift Y	EQX	0	0.000005
STORY9	Max Drift X	EQY	0.000428	0
STORY9	Max Drift Y	EQY	0	0.000037
STORY9	Max Drift X	WINDX	0.000025	0
STORY9	Max Drift Y	WINDX	0	0
STORY9	Max Drift X	WINDY	0.000025	0
STORY9	Max Drift Y	WINDY	0	0
STORY9	Max Drift X	SPEC1	0.000183	0
STORY9	Max Drift Y	SPEC1	0	0.000124

Graph



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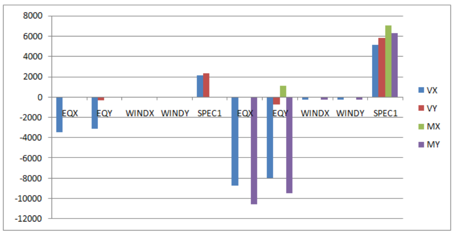
Vol. 6, Issue 7, July 2017

Story shear for story 30 and 29
For top

Story	Load	Loc	VX	VY	MX	MY
STORY 30	EQX	Top	-3454.72	0	0	0
STORY 30	EQY	Top	-3152.88	-301.84	0	0
STORY 30	WINDX	Top	-88.26	0	0	0
STORY 30	WINDY	Top	-88.26	0	0	0
STORY 30	SPEC1	Top	2102.69	2342.07	0	0
STORY29	EQX	Top	-8695.3	0	0	-10580.1
STORY29	EQY	Top	-7947.62	-747.68	1121.517	-9458.63
STORY29	WINDX	Top	-263.97	0	0	-264.785
STORY29	WINDY	Top	-263.97	0	0	-264.785
STORY29	SPEC1	Top	5106.61	5816.27	7026.197	6308.062

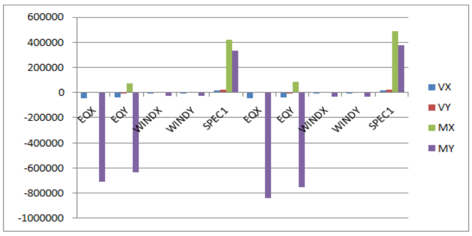
Graph



For 20 and 19
Top

Story	Load	Loc	VX	VY	MX	MY
STORY20	EQX	Top	-43225.8	0	0	-708117
STORY20	EQY	Top	-38438.6	-4787.23	71767.94	-636349
STORY20	WINDX	Top	-1790.91	0	0	-25931.6
STORY20	WINDY	Top	-1790.91	0	0	-25931.6
STORY20	SPEC1	Top	17423.46	23976.02	420929.2	330597.7
STORY19	EQX	Top	-45891.3	0	0	-838014
STORY19	EQY	Top	-40655.2	-5236.07	86350.12	-751664
STORY19	WINDX	Top	-1954.6	0	0	-31304.3
STORY19	WINDY	Top	-1954.6	0	0	-31304.3
STORY19	SPEC1	Top	18019.63	25148.41	490683.1	379840.6

Graph



For story 10 and 9
Top

Story	Load	Loc	VX	VY	MX	MY
STORY10	EQX	Top	-61506.5	0	0	-2296591
STORY10	EQY	Top	-52230.9	-9275.62	278183.1	-2018408
STORY10	WINDX	Top	-3359.1	0	0	-101260
STORY10	WINDY	Top	-3359.1	0	0	-101260
STORY10	SPEC1	Top	24897.38	34649.88	1226658	859286.1
STORY9	EQX	Top	-62500.3	0	0	-2481331
STORY9	EQY	Top	-52775.8	-9724.46	306230.4	-2175101
STORY9	WINDX	Top	-3505.25	0	0	-111337
STORY9	WINDY	Top	-3505.25	0	0	-111337
STORY9	SPEC1	Top	25835.5	35639.76	1319546	918948.9

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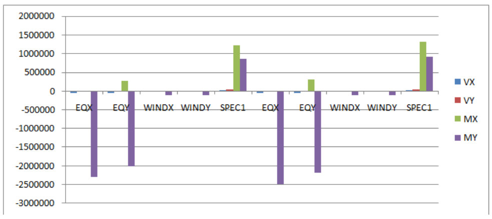
Vol. 6, Issue 7, July 2017

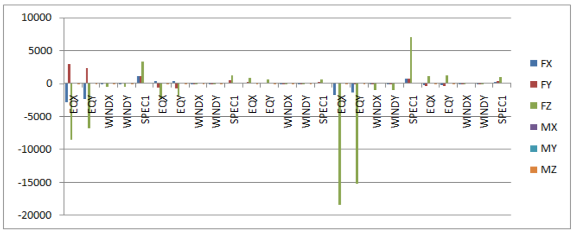
Graph



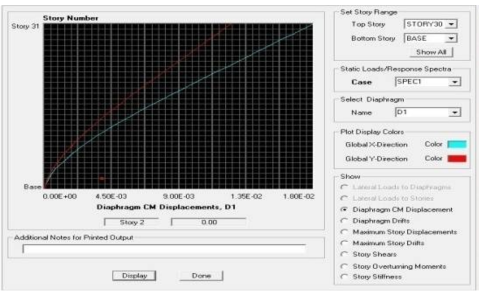
Support reactions

Story	Point	Load	FX	FY	FZ	MX	MY	MZ
BASE	1	EQX	-2861.93	2917.96	-8500.8	0	0	-5.047
BASE	1	EQY	-2370.16	2363.22	-6851.73	0	0	-4.759
BASE	1	WINDX	-155.64	152.95	-460.17	0	0	-0.304
BASE	1	WINDY	-155.64	152.95	-460.17	0	0	-0.304
BASE	1	SPEC1	1075.35	1134.87	3330.98	0	0	0
BASE	2	EQX	390.24	-662.85	-2230.34	0	0	6.242
BASE	2	EQY	348.78	-719.71	-2007.59	0	0	4.582
BASE	2	WINDX	14.49	-24.75	-62.53	0	0	0.319
BASE	2	WINDY	14.49	-24.75	-62.53	0	0	0.319
BASE	2	SPEC1	164.27	435.96	1193.8	0	0	0
BASE	3	EQX	74.09	262.74	849.33	0	0	1.799
BASE	3	EQY	107.72	120.81	646.56	0	0	-0.156
BASE	3	WINDX	-4.25	13.7	22.78	0	0	0.044
BASE	3	WINDY	-4.25	13.7	22.78	0	0	0.044
BASE	3	SPEC1	124.73	305.99	632.17	0	0	0
BASE	4	EQX	-1753.93	116.45	-18412.9	0	0	0.952
BASE	4	EQY	-1415.42	-183.19	-15196.6	0	0	-0.468
BASE	4	WINDX	-104.13	7.79	-1009.93	0	0	0
BASE	4	WINDY	-104.13	7.79	-1009.93	0	0	0
BASE	4	SPEC1	706.63	794.67	7080.76	0	0	0
BASE	5	EQX	-308.42	-360.01	1131.51	0	0	0.946
BASE	5	EQY	-239.08	-398.97	1283.25	0	0	0.223
BASE	5	WINDX	-25.17	-23.6	42.33	0	0	0
BASE	5	WINDY	-25.17	-23.6	42.33	0	0	0
BASE	5	SPEC1	193.22	344.63	983.57	0	0	0

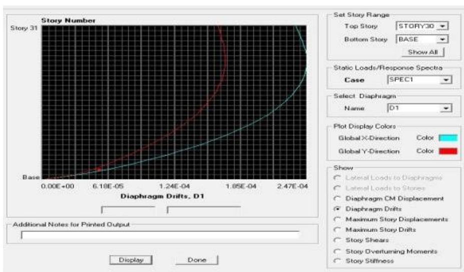
Graph



Response spectrum:



Diaphragm CM displacement



Diaphragm Drifts

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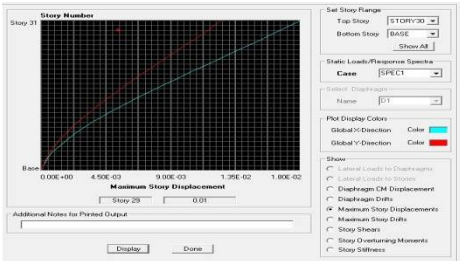
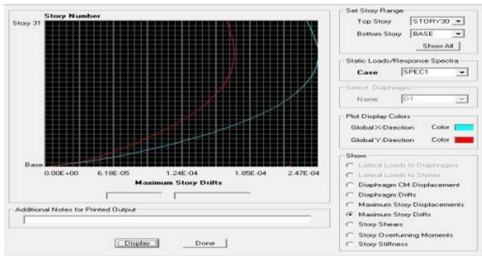
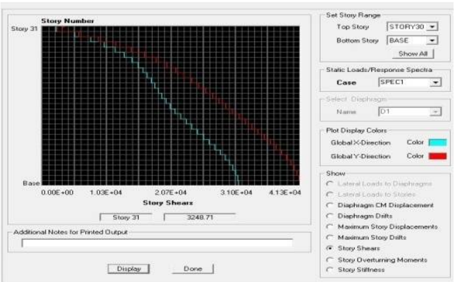
Vol. 6, Issue 7, July 2017



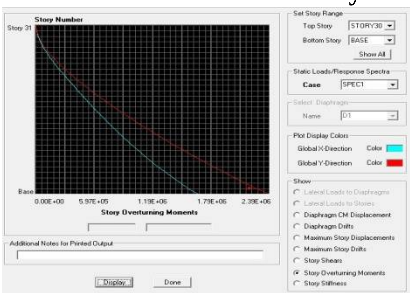
Maximum story displacements



Maximum story Drift

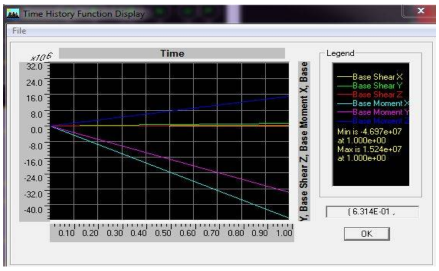


Story shear



Story overturning moment

Time history Analysis



Base Shear X,Y&Z, Base Moment X,Y&Z

V. CONCLUSIONS

From the above research the following conclusions were made**:** The behavior of high rise structure for both the scheme is studied in present paper. In this paper we got the results from mathematical model for models. The graph clearly shows the story drift, story shear, support reactions. It is also observed that the results are more conservative in Static analysis as compared to the dynamic method resulting uneconomical structure in both zone4 and zone5.

i. The story drift increases from top story to bottom story in both zone4 and zone5 at story 31 the drift is maximum as compared to other stories.
ii. The zone5 has higher value of drift as we compared the drift values in zone4 and zone5.
iii. The story shear is maximum for the moments as we compared with the forces in all stories for zone4 and zone5. In zone5 has higher value of shear as we compared with zone4.
iv. The Z direction force for support reactions has maximum value as we compared with X direction and Y direction support reactions in zone4 and zone5.
v. The X direction moment for support reactions has maximum value as we compared with Y direction moment and Z direction moment in zone4 and zone5.
vi. The maximum value is occurs in zone5 than zone4 for forces and moments in support reactions
vii. Designing by Software’s like ETABS reduces ton of your time in design work.
viii. Details of each and every member will be obtained by ETABS.

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Vol. 6, Issue 7, July 2017

ix. All the List of unsuccessful beams will be obtained and conjointly higher Section is given by the software.
x. Accuracy is improved by using software.

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