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Comprehensive Study of Lateral Load on R.C. Framed Building in Critical Wind and Earthquake Zone

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Abstract: **The design of earthquake resistant Building is Becoming necessity in view of recurring Earthquake activity. The force induced in structure of highly compredictable. It is accepeted that the complete protection against earthquake of all size is economically infeasible. The basic logic in to provide adequate lateral strength and enhance ductility capacity of building to building to result in limited damage without collapse .A case study of performance of multi-story framed structure with time history approach is presented. Wind which has the potential benefits of further refinement in deriving design wind loading and its effects on tall buildings, is also emphasized.**

Keywords: **Shear Displacement, Base Shear, Story Drift, Beam, Coloumn, Slab, Time history.**

1. INTRODUCTION

An earthquake is the sudden vibration of the earth’s surface by rapid release of energy when two parts of rock masses move suddenly in relation to each other along a fault. Earthquakes of large magnitudes can be classified as great natural catastrophes. Wind is a phenomenon of great complexity because of the many flow situations arising from the interaction of wind with structures. Wind is composed of a multitude of eddies of varying size sand rotational characteristics carried along in a general stream of air moving relative to the earth’s surface.

2. LITERATURE REVIEW

A.S. Patil, P.D. Kumbhar [1] In this paper study of nonlinear dynamic analysis of ten storied RCC building considering different seismic intensities is carried out and seismic responses of such building are studied. The building under consideration is modeled with the help of SAP2000-15 software. Five different time histories have been used considering seismic intensities V, VI, VII, VIII, IX and X for establishment of relationship between seismic intensities and seismic responses. The results of the study shows similar variations pattern in Seismic responses such as base shear and storey displacements with intensities V to X. From the study it is recommended that analysis of multistoried RCC building using Time History method becomes necessary to ensure safety against earthquake force.

Mr.Parvathaneni Subash, Mr.S.Elavenil [2] have done the three dimensional RC frames analysis for gravity loads and loads and the response spectrum analysis and time history analysis carried out to evaluate seismic lateral performance of frame. The time-history analysis is carried out by using the compatible accelerograms. The response spectrum analysis and time-history analysis is done by using ETABS, and results obtained from analysis are verified. Nonlinear time history analysis is done for studying the inelastic behaviour of the structures.

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B. Samali and J. Cheung [3] Simple quasi-static treatment of wind loading, which is universally applied to design of typical low to medium-rise structures, can be unacceptably conservative for design of very tall buildings. On the other hand such simple treatment can easily lead to erroneous results and under-estimations. More importantly such a simplified treatment for deriving lateral loads does not address key design issues including dynamic response (effects of resonance, acceleration, damping, structural stiffness), interference from other structures, wind directionality, and cross wind response, which are all important factors in wind design of tall Buildings. This paper provides an outline of advanced levels of wind design, in the context of the Australian Wind Code, and illustrates the exceptional benefits it offers over simplified approaches.

3. METHODOLOGY

- **Response Spectrum Analysis:**

Select the design spectrum.

Determine the mode shapes and periods of vibration to be included in the analysis.

Read the level of response from the spectrum for the period of each of the modes considered.

Calculate participation of each mode corresponding to the single-degree-of-freedom response read from the curve.

Add the effect of modes to obtain combined maximum response.

Convert the combined maximum response into shears and moments for use in design of the structure.

Analyze the building for the resulting moments and shears.

- **Time History Analysis:** The earthquake records are not available for any site in zone III. However the acclerogram record for koyna being available is consider as input for the case study zone III and IV are adjacent zone. Hence the input may match for any feature earthquake zone III

$[M]\{\ddot{u}(t)\}+[C]\{\acute{u}(t)\}+[K]\{u(t)\}=\{f(t)\}$ …… 1

$[\Phi]=[\{\psi\}_1\{\psi\}_2....\{\psi\}_n$ …2

$[K][\Phi]=[M][\Phi][\omega^2]$ ….3

$\{u\} = [\Phi]\ \{x\}$ … 4

$[\Phi]^T [M]\ [\Phi]\{x\}+ [\Phi]^T[C]\ [\Phi]\{x\}+[\Phi]^T[K]\ [\Phi]\{x\}=[\ \Phi]^T\{f(t)\}$ -----5

$[\Phi]^T [M]\ [\Phi] = [1]$ . ..6

$[\Phi]^T[C][\Phi]=2[\xi][\omega]$ ..7

$[\Phi]^T[K]\ [\Phi] = [\omega^2]$ …8

$x_1 + 2\xi\omega\ x_{1\ +}\ \omega^2 = \{\psi\}^T_i\{f(t)\}$ for i =1, ..., n -----(9)

(Eq.9) is solved by using step-by-step integration methods like Newmark.

- **Wind analysis:**

Vz = Vb k1 k2 k3

$Pz = 0.6\ Vz^2$

Vz = design wind speed at any height z in m/s,

Vb = Basic wind speed in m/s,

k1 = probability factor (risk coefficient

k2 = terrain roughness and height factor and

k3 = topography factor

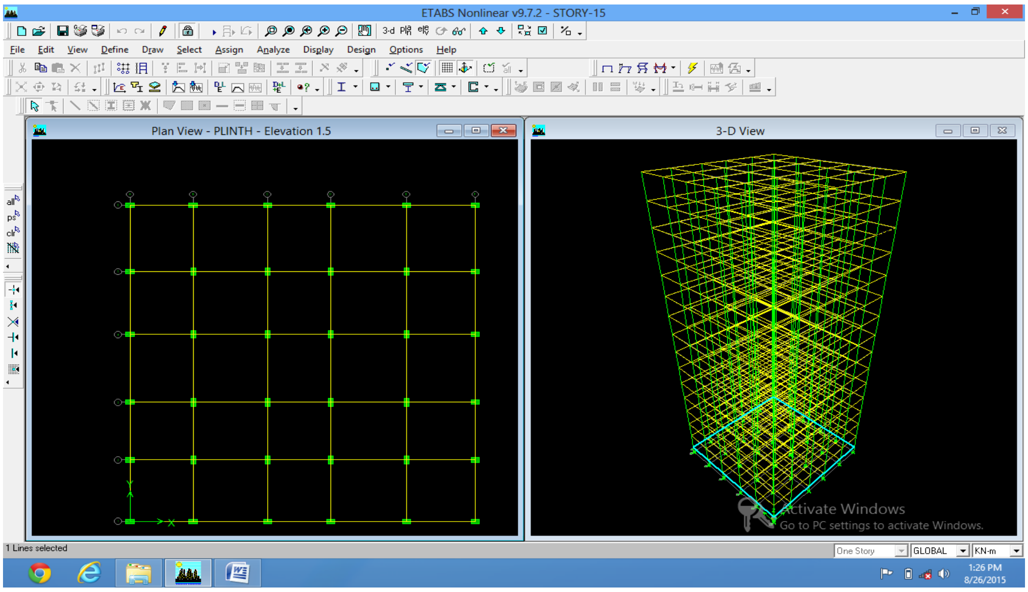
Pz = wind pressure in N/m2 at height z

Vz = design wind speed in m/s at height z.

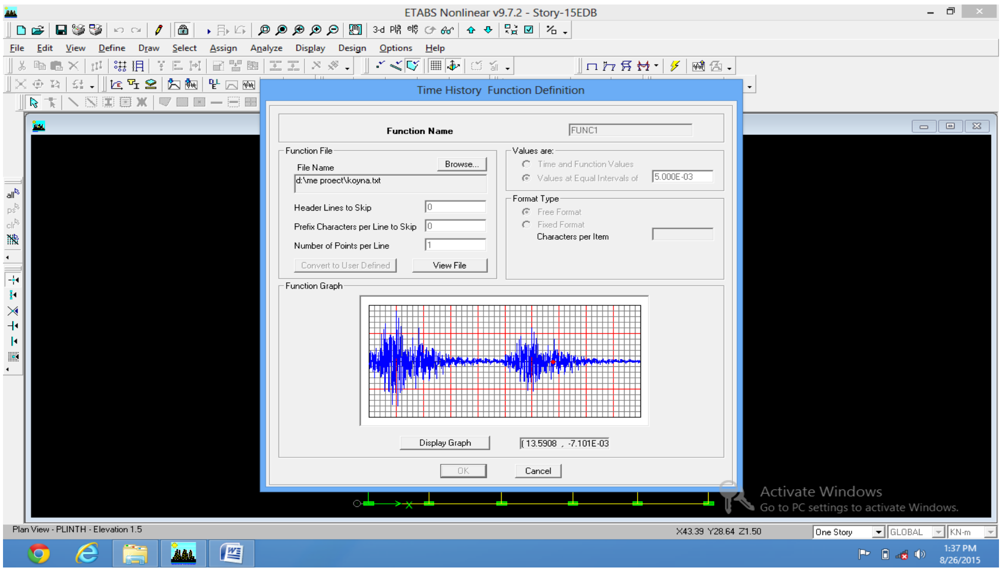
Problem statement:

Dimensions of proposed model no.1

Height of each floor	4m
Size of all beam	300X450mm
Size of all column	600X600mm
Thickness of slab	120mm
Thickness of wall	230mm



Time history function:



Dead Load =15.53KN
Parapet Load = 6.55KN

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4. RESULT AND DISCUSSIONS

The results obtained from the analysis of multistoried Building by using response spectrum analysis and time history analysis for different parameters such as story shear, story displacement and story drift and compare these parameters in following manner

Earthquake anaylsis:

Story Displacement:

Table 1

Story	Load	UX	UY
STORY15	SPEC1	0.0281	0.0001
STORY15	SPEC2	0.0001	0.0272
STORY14	SPEC1	0.0276	0.0001
STORY14	SPEC2	0.0001	0.0267
STORY13	SPEC1	0.0268	0.0001
STORY13	SPEC2	0.0001	0.026
STORY12	SPEC1	0.0257	0.0001
STORY12	SPEC2	0.0001	0.025
STORY11	SPEC1	0.0244	0.0001
STORY11	SPEC2	0.0001	0.0238
STORY10	SPEC1	0.0229	0.0001
STORY9	SPEC1	0.0212	0.0001
STORY9	SPEC2	0.0001	0.0208
STORY8	SPEC1	0.0194	0.0001
STORY8	SPEC2	0.0001	0.019
STORY7	SPEC1	0.0174	0.0001
STORY7	SPEC2	0.0001	0.017
STORY6	SPEC1	0.0152	0.0001
STORY6	SPEC2	0.0001	0.015
STORY5	SPEC1	0.0129	0.0001
STORY5	SPEC2	0.0001	0.0127
STORY4	SPEC1	0.0105	0.0001
STORY4	SPEC2	0.0001	0.0104
STORY3	SPEC1	0.0079	0
STORY3	SPEC2	0	0.0079
STORY2	SPEC1	0.0052	0
STORY2	SPEC2	0	0.0052
STORY1	SPEC1	0.0025	0
STORY1	SPEC2	0	0.0025
PLINTH	SPEC1	0.0002	0
PLINTH	SPEC2	0	0.0002

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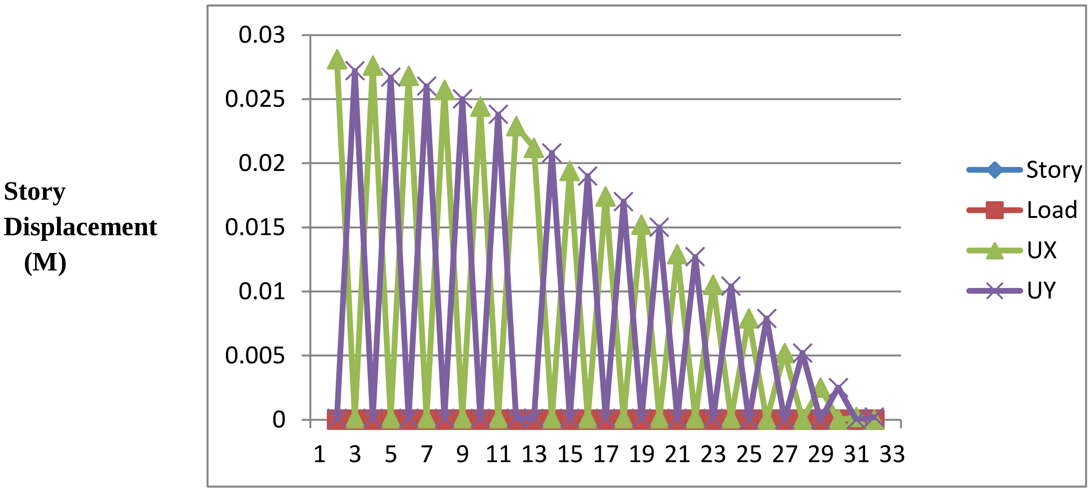

Story Drift:

Table-2

Story	Load	DriftX	DriftY
STORY15	SPEC1	0.000187	
STORY15	SPEC1		0.000009
STORY15	SPEC2	0.00001	
STORY15	SPEC2		0.000163
STORY14	SPEC1	0.000284	
STORY14	SPEC1		0.000015
STORY14	SPEC2	0.000017	
STORY14	SPEC2		0.000264
STORY13	SPEC1	0.000363	
STORY13	SPEC1		0.00002
STORY13	SPEC2	0.000023	
STORY13	SPEC2		0.000342
STORY12	SPEC1	0.00042	
STORY12	SPEC1		0.000023
STORY12	SPEC2	0.000026	
STORY12	SPEC2		0.000398
STORY11	SPEC1	0.000467	
STORY11	SPEC1		0.000026
STORY11	SPEC2	0.000029	
STORY11	SPEC2		0.000444
STORY10	SPEC1	0.00051	
STORY10	SPEC1		0.000028
STORY10	SPEC2	0.000032	
STORY10	SPEC2		0.000487
STORY9	SPEC1	0.000547	
STORY9	SPEC1		0.00003
STORY9	SPEC2	0.000035	
STORY9	SPEC2		0.000524
STORY8	SPEC1	0.000578	
STORY8	SPEC1		0.000032
STORY8	SPEC2	0.000037	

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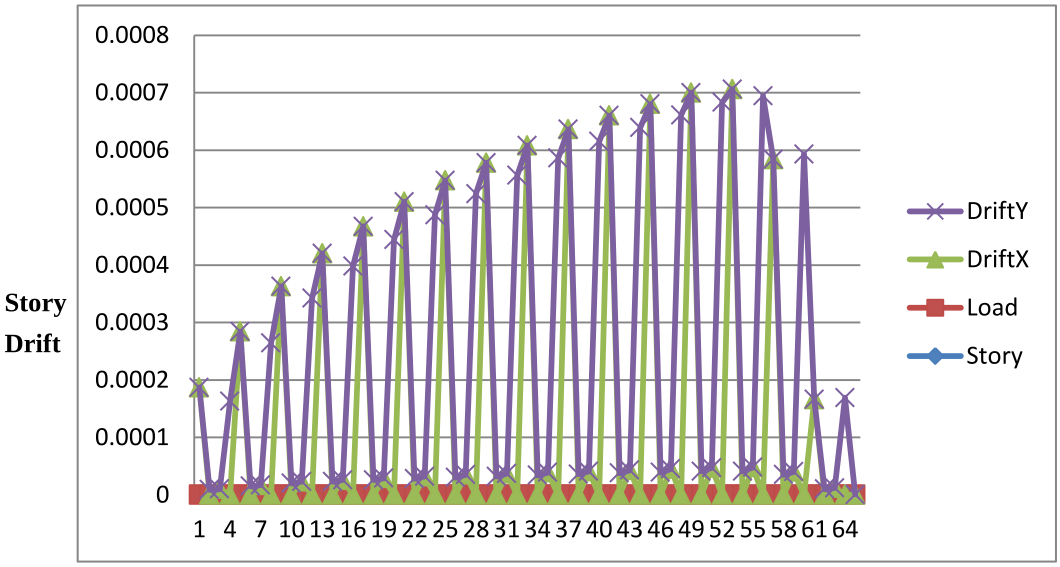
STORY8	SPEC2		0.000556
STORY7	SPEC1	0.000608	
STORY7	SPEC1		0.000034
STORY7	SPEC2	0.000039	
STORY7	SPEC2		0.000586
STORY6	SPEC1	0.000636	
STORY6	SPEC1		0.000036
STORY6	SPEC2	0.000041	
STORY6	SPEC2		0.000615
STORY5	SPEC1	0.00066	
STORY5	SPEC1		0.000038
STORY5	SPEC2	0.000043	
STORY5	SPEC2		0.000639
STORY4	SPEC1	0.00068	
STORY4	SPEC1		0.000039
STORY4	SPEC2	0.000045	
STORY4	SPEC2		0.000661
STORY3	SPEC1	0.0007	
STORY3	SPEC1		0.000041
STORY3	SPEC2	0.000047	
STORY3	SPEC2		0.000683
STORY2	SPEC1	0.000706	
STORY2	SPEC1		0.000041
STORY2	SPEC2	0.000048	
STORY2	SPEC2		0.000694
STORY1	SPEC1	0.000584	
STORY1	SPEC1		0.000035
STORY1	SPEC2	0.00004	
STORY1	SPEC2		0.000593
PLINTH	SPEC1	0.000166	
PLINTH	SPEC1		0.00001
PLINTH	SPEC2	0.000012	
PLINTH	SPEC2		0.000169

Story



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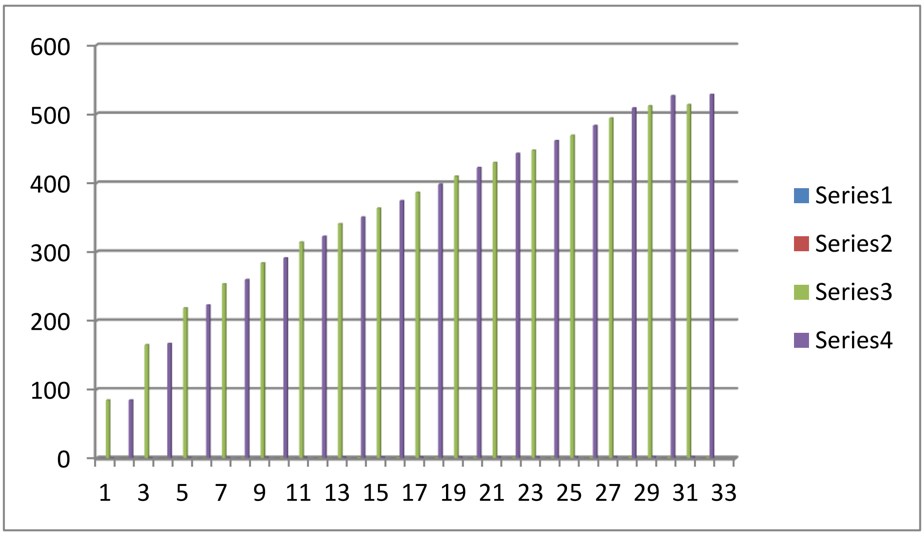
Base Shear:

Table-3

Story	Load	VX	VY
STORY15	SPEC1	84.75	0.49
STORY15	SPEC2	0.49	84.9
STORY14	SPEC1	165.43	0.94
STORY14	SPEC2	0.94	167.31
STORY13	SPEC1	219.02	1.22
STORY13	SPEC2	1.22	223.11
STORY12	SPEC1	253.92	1.37
STORY12	SPEC2	1.37	259.9
STORY11	SPEC1	284.18	1.5
STORY11	SPEC2	1.49	291.38
STORY10	SPEC1	314.48	1.64
STORY10	SPEC2	1.64	322.68
STORY9	SPEC1	341.04	1.78
STORY9	SPEC2	1.78	350.53
STORY8	SPEC1	363.59	1.89
STORY8	SPEC2	1.89	374.48
STORY7	SPEC1	386.45	2
STORY7	SPEC2	2	398.38
STORY6	SPEC1	409.86	2.11
STORY6	SPEC2	2.12	422.52
STORY5	SPEC1	429.88	2.21
STORY5	SPEC2	2.21	443.23
STORY4	SPEC1	447.45	2.28
STORY4	SPEC2	2.29	461.42
STORY3	SPEC1	469.11	2.39
STORY3	SPEC2	2.39	483.39
STORY2	SPEC1	494.45	2.53
STORY2	SPEC2	2.53	508.9
STORY1	SPEC1	511.92	2.63
STORY1	SPEC2	2.63	526.71
PLINTH	SPEC1	513.78	2.65
PLINTH	SPEC2	2.65	528.6

Story

Shear Force (KN)



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Wind anaylsis:

Story Displacement:

Table-4

Story	LOAD	UX	UY
STORY15	WLX	0.1722	
STORY15	WLY		0.161
STORY14	WLX	0.1694	
STORY14	WLY		0.1587
STORY13	WLX	0.1653	
STORY13	WLY		0.1551
STORY12	WLX	0.1599	
STORY12	WLY		0.1502
STORY11	WLX	0.153	
STORY11	WLY		0.1439
STORY10	WLX	0.1447	
STORY10	WLY		0.1363
STORY9	WLX	0.1351	
STORY9	WLY		0.1274
STORY8	WLX	0.1241	
STORY8	WLY		0.1173
STORY7	WLX	0.1119	
STORY7	WLY		0.106
STORY6	WLX	0.0985	
STORY6	WLY		0.0935
STORY5	WLX	0.0839	
STORY5	WLY		0.0799
STORY4	WLX	0.0682	
STORY4	WLY		0.0652
STORY3	WLX	0.0516	
STORY3	WLY		0.0496
STORY2	WLX	0.0342	
STORY2	WLY		0.0331
STORY1	WLX	0.0164	
STORY1	WLY		0.0162
PLINTH	WLX	0.0016	
PLINTH	WLY		0.0016

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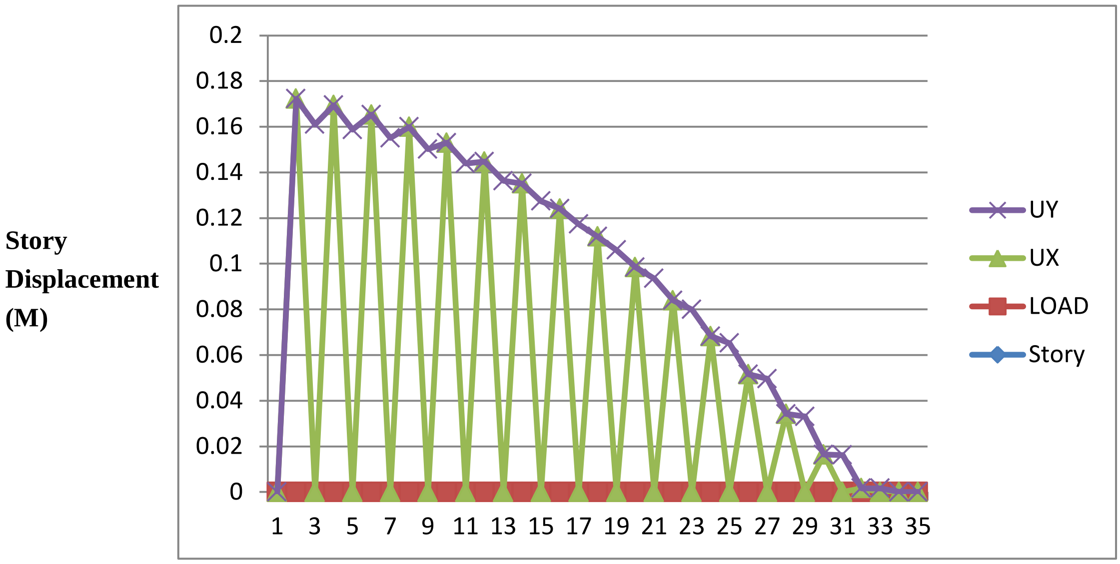

Story

Story Drift:

Table-5

Story	Load	DriftX	DriftY
STORY15	WLX	0.00071	
STORY15	WLX		0.000008
STORY15	WLY	0.000005	
STORY15	WLY		0.000583
STORY14	WLX	0.001028	
STORY14	WLX		0.000013
STORY14	WLY	0.00001	
STORY14	WLY		0.000904
STORY13	WLX	0.001387	
STORY13	WLX		0.000018
STORY13	WLY	0.000014	
STORY13	WLY		0.001246
STORY12	WLX	0.001746	
STORY12	WLX		0.000023
STORY12	WLY	0.000019	
STORY12	WLY		0.001587
STORY11	WLX	0.002097	
STORY11	WLX		0.000028
STORY11	WLY	0.000024	
STORY11	WLY		0.00192
STORY10	WLX	0.002441	
STORY10	WLX		0.000033
STORY10	WLY	0.000029	
STORY10	WLY		0.002246
STORY9	WLX	0.002775	
STORY9	WLX		0.000038
STORY9	WLY	0.000034	
STORY9	WLY		0.002564
STORY8	WLX	0.003097	
STORY8	WLX		0.000043
STORY8	WLY	0.000038	

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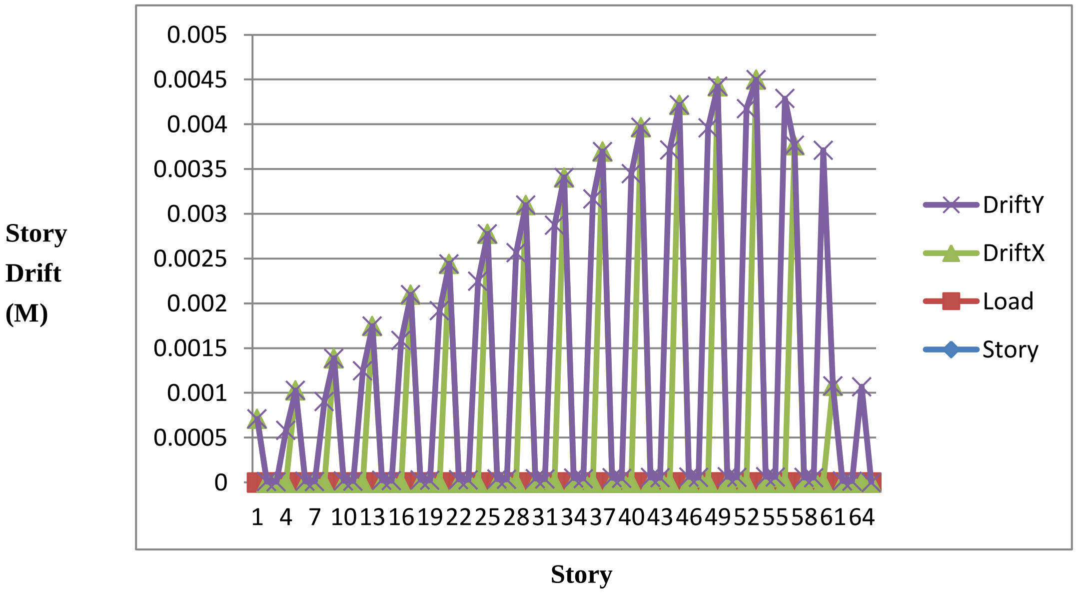
STORY8	WLY		0.002872
STORY7	WLX	0.003406	
STORY7	WLX		0.000048
STORY7	WLY	0.000042	
STORY7	WLY		0.003168
STORY6	WLX	0.003697	
STORY6	WLX		0.000052
STORY6	WLY	0.000047	
STORY6	WLY		0.003449
STORY5	WLX	0.003968	
STORY5	WLX		0.000056
STORY5	WLY	0.000051	
STORY5	WLY		0.003714
STORY4	WLX	0.004216	
STORY4	WLX		0.00006
STORY4	WLY	0.000055	
STORY4	WLY		0.00396
STORY3	WLX	0.004423	
STORY3	WLX		0.000063
STORY3	WLY	0.000058	
STORY3	WLY		0.004175
STORY2	WLX	0.004499	
STORY2	WLX		0.000065
STORY2	WLY	0.00006	
STORY2	WLY		0.004287
STORY1	WLX	0.003766	
STORY1	WLX		0.000055
STORY1	WLY	0.000053	
STORY1	WLY		0.00371
PLINTH	WLX	0.00108	
PLINTH	WLX		0.000016
PLINTH	WLY	0.000015	
PLINTH	WLY		0.001069



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Time History Function:

Story Displacement:

Table-6

Story	Load	UX	UY
STORY15	KOYNA1 MAX	0.0018	0
STORY15	KOYNA1 MIN	-0.0018	0
STORY15	KOYNA2 MAX	0	0.0017
STORY15	KOYNA2 MIN	0	-0.0017
STORY14	KOYNA1 MAX	0.0016	0
STORY14	KOYNA1 MIN	-0.0017	0
STORY14	KOYNA2 MAX	0	0.0016
STORY14	KOYNA2 MIN	0	-0.0016
STORY13	KOYNA1 MAX	0.0015	0
STORY13	KOYNA1 MIN	-0.0016	0
STORY13	KOYNA2 MAX	0	0.0016
STORY13	KOYNA2 MIN	0	-0.0016
STORY12	KOYNA1 MAX	0.0014	0
STORY12	KOYNA1 MIN	-0.0014	0
STORY12	KOYNA2 MAX	0	0.0015
STORY12	KOYNA2 MIN	0	-0.0015
STORY11	KOYNA1 MAX	0.0014	0
STORY11	KOYNA1 MIN	-0.0013	0
STORY11	KOYNA2 MAX	0	0.0014
STORY11	KOYNA2 MIN	0	-0.0013
STORY10	KOYNA1 MAX	0.0013	0
STORY10	KOYNA1 MIN	-0.0012	0
STORY10	KOYNA2 MAX	0	0.0013
STORY10	KOYNA2 MIN	0	-0.0012
STORY9	KOYNA1 MAX	0.0014	0
STORY9	KOYNA1 MIN	-0.0011	0
STORY9	KOYNA2 MAX	0	0.0012
STORY9	KOYNA2 MIN	0	-0.0011
STORY8	KOYNA1 MAX	0.0014	0
STORY8	KOYNA1 MIN	-0.001	0
STORY8	KOYNA2 MAX	0	0.0011
STORY8	KOYNA2 MIN	0	-0.001
STORY7	KOYNA1 MAX	0.0014	0
STORY7	KOYNA1 MIN	-0.0009	0
STORY7	KOYNA2 MAX	0	0.001
STORY7	KOYNA2 MIN	0	-0.0009
STORY6	KOYNA1 MAX	0.0014	0
STORY6	KOYNA1 MIN	-0.001	0
STORY6	KOYNA2 MAX	0	0.001
STORY6	KOYNA2 MIN	0	-0.0009
STORY5	KOYNA1 MAX	0.0013	0
STORY5	KOYNA1 MIN	-0.001	0

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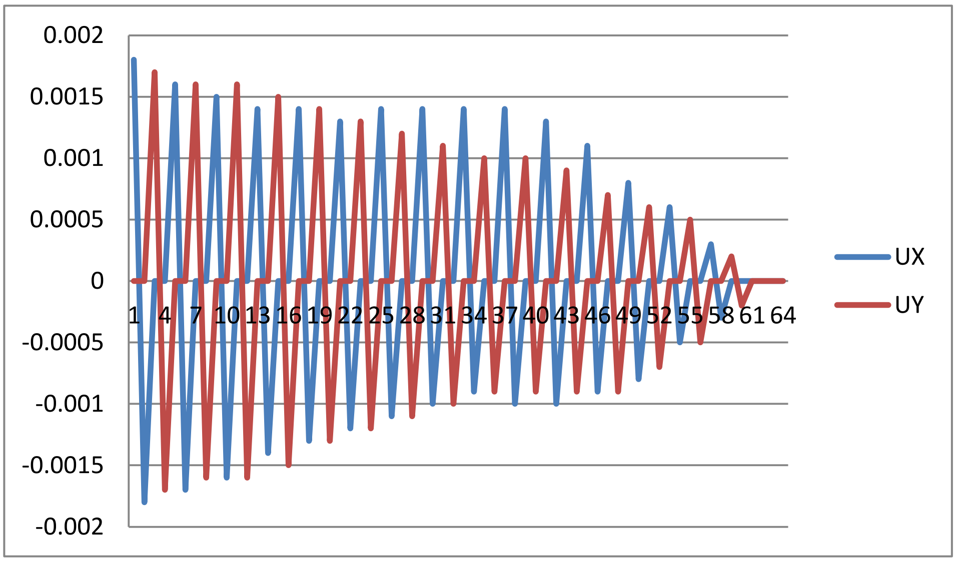
STORY5	KOYNA2 MAX	0	0.0009
STORY5	KOYNA2 MIN	0	-0.0009
STORY4	KOYNA1 MAX	0.0011	0
STORY4	KOYNA1 MIN	-0.0009	0
STORY4	KOYNA2 MAX	0	0.0007
STORY4	KOYNA2 MIN	0	-0.0009
STORY3	KOYNA1 MAX	0.0008	0
STORY3	KOYNA1 MIN	-0.0008	0
STORY3	KOYNA2 MAX	0	0.0006
STORY3	KOYNA2 MIN	0	-0.0007
STORY2	KOYNA1 MAX	0.0006	0
STORY2	KOYNA1 MIN	-0.0005	0
STORY2	KOYNA2 MAX	0	0.0005
STORY2	KOYNA2 MIN	0	-0.0005
STORY1	KOYNA1 MAX	0.0003	0
STORY1	KOYNA1 MIN	-0.0003	0
STORY1	KOYNA2 MAX	0	0.0002
STORY1	KOYNA2 MIN	0	-0.0002
PLINTH	KOYNA1 MAX	0	0
PLINTH	KOYNA1 MIN	0	0
PLINTH	KOYNA2 MAX	0	0
PLINTH	KOYNA2 MIN	0	0

Story Displacement (M)



Story

Story Drift:

Table-7

Story	LOAD	DriftX	DriftY
STORY15	KOYNA1	0.000041	
STORY15	KOYNA1		0.000001
STORY15	KOYNA2	0.000011	
STORY15	KOYNA2		0.000045

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STORY14	KOYNA1	0.000062	
STORY14	KOYNA1		0.000001
STORY14	KOYNA2	0.000017	
STORY14	KOYNA2		0.000069
STORY13	KOYNA1	0.000074	
STORY13	KOYNA1		0.000001
STORY13	KOYNA2	0.00002	
STORY13	KOYNA2		0.000076
STORY12	KOYNA1		0.000001
STORY12	KOYNA2	0.000019	
STORY12	KOYNA2		0.000063
STORY11	KOYNA1	0.000083	
STORY11	KOYNA1		0.000001
STORY11	KOYNA2	0.000022	
STORY11	KOYNA2		0.00007
STORY10	KOYNA1	0.000076	
STORY10	KOYNA1		0.000001
STORY10	KOYNA2	0.000021	
STORY10	KOYNA2		0.000079
STORY9	KOYNA1	0.000075	
STORY9	KOYNA1		0.000001
STORY9	KOYNA2	0.00002	
STORY9	KOYNA2		0.000082
STORY8	KOYNA1	0.000066	
STORY8	KOYNA1		0.000001
STORY8	KOYNA2	0.000016	
STORY8	KOYNA2		0.000076
STORY7	KOYNA1	0.000059	
STORY7	KOYNA1		0.000001
STORY7	KOYNA2	0.000011	
STORY7	KOYNA2		0.000059
STORY6	KOYNA1	0.000047	
STORY6	KOYNA1		0.000001
STORY6	KOYNA2	0.000011	
STORY6	KOYNA2		0.000053
STORY5	KOYNA1	0.000047	
STORY5	KOYNA1		0.000001
STORY5	KOYNA2	0.000012	
STORY5	KOYNA2		0.000047
STORY4	KOYNA1	0.000061	
STORY4	KOYNA1		0.000001
STORY4	KOYNA2	0.000013	
STORY4	KOYNA2		0.000049
STORY3	KOYNA1	0.000071	
STORY3	KOYNA1		0.000001
STORY3	KOYNA2	0.000016	
STORY3	KOYNA2		0.000066
STORY2	KOYNA1	0.000076	

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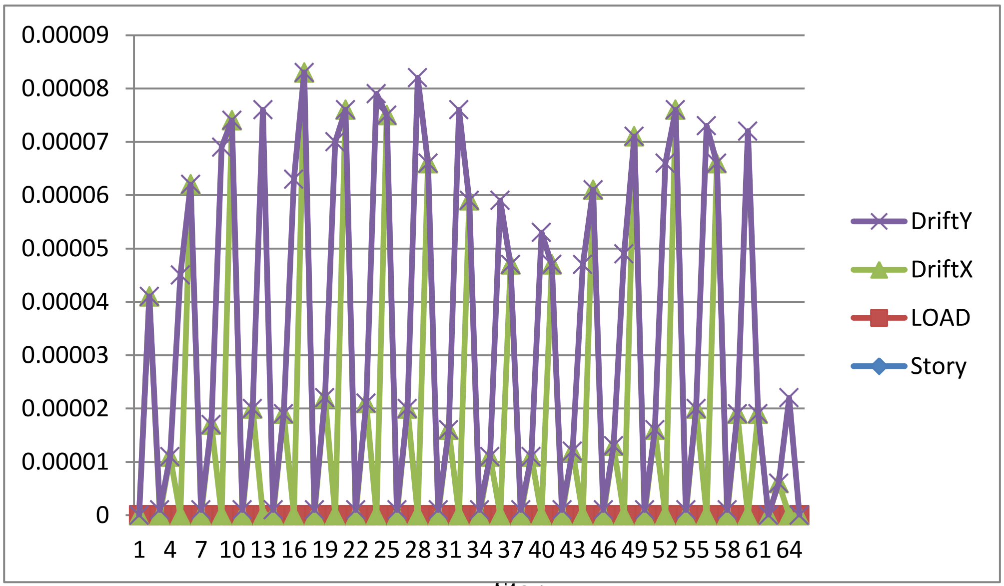
STORY2	KOYNA1		0.000001
STORY2	KOYNA2	0.00002	
STORY2	KOYNA2		0.000073
STORY1	KOYNA1	0.000066	
STORY1	KOYNA1		0.000001
STORY1	KOYNA2	0.000019	
STORY1	KOYNA2		0.000072
PLINTH	KOYNA1	0.000019	
PLINTH	KOYNA1		0
PLINTH	KOYNA2	0.000006	
PLINTH	KOYNA2		0.000022

Story Drift (M)



Story

Base Shear:

Table-8

Story	Load		VX	VY
STORY15	KOYNA1 MAX		14.31	0.15
STORY15	KOYNA1 MIN		-18.36	-0.11
STORY15	KOYNA2 MAX		0.16	19.14
STORY15	KOYNA2 MIN		-0.12	-17.29
STORY14	KOYNA1 MAX		28.04	0.27
STORY14	KOYNA1 MIN		-34.91	-0.19
STORY14	KOYNA2 MAX		0.28	34.63
STORY14	KOYNA2 MIN		-0.21	-31.18
STORY13	KOYNA1 MAX		37.1	0.28
STORY13	KOYNA1 MIN		-43.19	-0.22
STORY13	KOYNA2 MAX		0.29	38.67
STORY13	KOYNA2MIN		-0.22	-34.73
STORY12	KOYNA1 MAX		40.42	0.21
STORY12	KOYNA1 MIN		-43.61	-0.17
STORY12	KOYNA2 MAX		0.21	32.52

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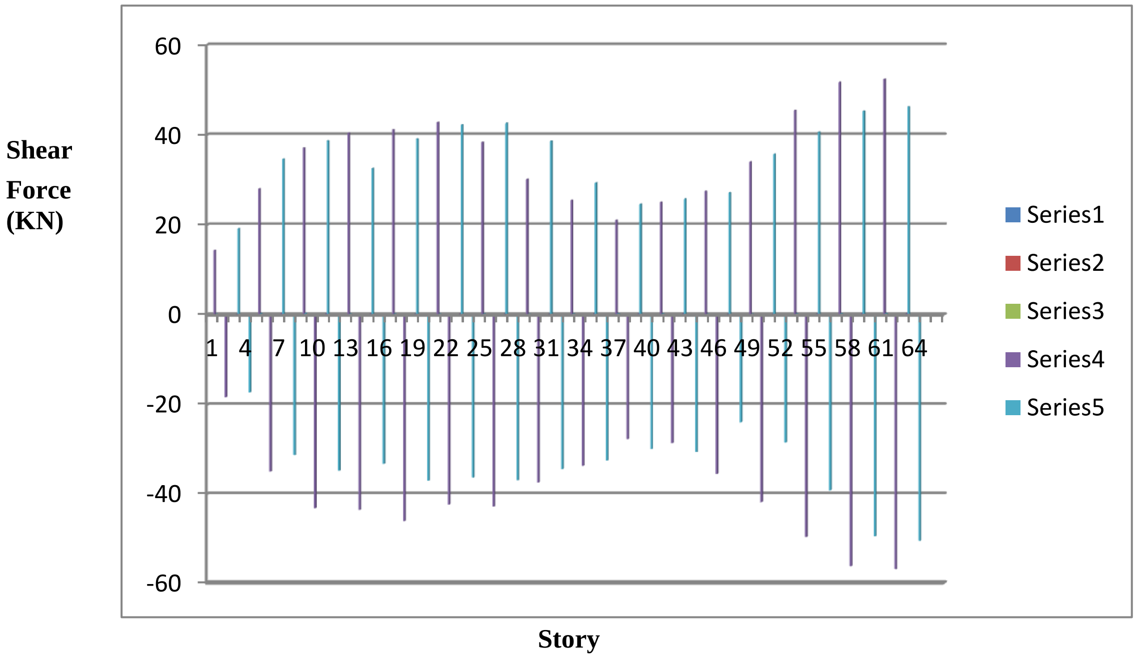
STORY12	KOYNA2 MIN	-0.19	-33.18
STORY11	KOYNA1 MAX	41.15	0.17
STORY11	KOYNA1 MIN	-46.14	-0.19
STORY11	KOYNA2 MAX	0.18	39.09
STORY11	KOYNA2 MIN	-0.19	-36.98
STORY10	KOYNA1 MAX	42.8	0.17
STORY10	KOYNA1 MIN	-42.38	-0.19
STORY10	KOYNA2 MAX	0.17	42.23
STORY10	KOYNA2 MIN	-0.19	-36.3
STORY9	KOYNA1 MAX	38.36	0.18
STORY9	KOYNA1 MIN	-42.83	-0.19
STORY9	KOYNA2 MAX	0.18	42.6
STORY9	KOYNA2 MIN	-0.2	-36.9
STORY8	KOYNA1 MAX	30.13	0.15
STORY8	KOYNA1 MIN	-37.44	-0.18
STORY8	KOYNA2 MAX	0.17	38.63
STORY8	KOYNA2 MIN	-0.17	-34.39
STORY7	KOYNA1 MAX	25.48	0.19
STORY7	KOYNA1 MIN	-33.66	-0.16
STORY7	KOYNA2 MAX	0.2	29.35
STORY7	KOYNA2 MIN	-0.18	-32.46
STORY6	KOYNA1 MAX	21.05	0.25
STORY6	KOYNA1 MIN	-27.66	-0.21
STORY6	KOYNA2 MAX	0.25	24.6
STORY6	KOYNA2 MIN	-0.21	-29.88
STORY5	KOYNA1 MAX	25.02	0.22
STORY5	KOYNA1 MIN	-28.53	-0.19
STORY5	KOYNA2 MAX	0.22	25.75
STORY5	KOYNA2 MIN	-0.2	-30.64
STORY4	KOYNA1 MAX	27.47	0.14
STORY4	KOYNA1 MIN	-35.5	-0.13
STORY4	KOYNA2 MAX	0.14	27.16
STORY4	KOYNA2 MIN	-0.13	-23.93
STORY3	KOYNA1 MAX	34.03	0.12
STORY3	KOYNA1 MIN	-41.86	-0.11
STORY3	KOYNA2 MAX	0.11	35.74
STORY3	KOYNA2 MIN	-0.1	-28.4
STORY2	KOYNA1 MAX	45.42	0.2
STORY2	KOYNA1 MIN	-49.7	-0.27
STORY2	KOYNA2 MAX	0.2	40.63
STORY2	KOYNA2 MIN	-0.27	-39.18
STORY1	KOYNA1 MAX	51.75	0.26
STORY1	KOYNA1 MIN	-56.3	-0.37
STORY1	KOYNA2 MAX	0.26	45.31
STORY1	KOYNA2 MIN	-0.38	-49.51
PLINTH	KOYNA1 MAX	52.39	0.27
PLINTH	KOYNA1 MIN	-56.95	-0.38



5. SCOPE OF WORK

The literature review suggested that there is necessity to evaluate seismic responses of multistory building for earthquake zone III, while designing such structure to ensure safety against earthquake forces. Seismic analysis of RCC multistory building using dynamic method is required to carry out for the determination of seismic responses of such building so as to understand the realistic behaviour.

The multistoried building when subjected to high wind need to be analyzed for structural safety and design the comments on the basis analysis result. Hence trial case study is performance on 3-Building structure with different height.

6. CONCLUSION

Important structures time history analysis should be performed as it predicts the structural response more accurately than the response spectrum analysis.

The values of the Storey drifts for all the stories for all the effects are found to be within the permissible limits specified by IS: 1893-2002 (Part I)

The numerical data input from time history analysis reflects in the behavior of structure nature of story drift and story displacement variation resemble to the variation in numerical value of koyna earthquake record.

The variation in base shear for time history analysis is similar to wave because of the value of ground acceleration vary with respect to time which is decide the Inertia Force.

After considering effect of wind Load and earthquake load on the performance of building it found that for this structure earthquake is more critical than wind.

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