iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** VI **Month of publication:** June 2017

DOI:

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

Volume 5 Issue V, May 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Analysis of High Rise Building with Different Codes

Vivek Tiwari[1], Shashank Gupta[2]
[1]Student M.Tech Civil Engineering, Amity University Madhya Pradesh, [2]Asst. Prof. Department of Civil Engineering, Amity University Madhya Pradesh

***Abstract:** This growing world, a civil engineering student during the execution of a project as before and structural elements and their safety standards need to be fully aware of. It is the sequel to try as analysis and design of a multi storey building limit State method for learning (456:2000). Reinforced Concrete buildings " "project.Is focused on limit State method (collapse and serviceability) design. The collapse of the State, in the range of strength and ensure the stability of the structure. Follow the guidelines that are being 456:2000 and 13920:1993 as per and used different codes. Manufacture of structural components, load floor in a typical multi-storey which transfers one or a set of plane frame in both directions to the destination system. Level, columns, beams and slabs design study. Hostel a multi-storey residential building project present-ji deals with the analysis of G+9. Loadings are applied and design beam, columns, slabs and footings. With its new features of its predecessors the Pro ETABS and compotators sharing capabilities like AutoCAD, and with other major software MS Excel with your data. This study concludes that a multi-storey building design standards are successfully planted and Staad Pro is a very powerful tool that can save a lot of time and is very accurate in design*
***Key Words:** Different codes, Etabs ,staad foundation.*

I. INTRODUCTION

At present people are facing problem of land. Structure are built to facilitate the performance of various activities connected with residence , office ,education ,healthcare , sports and recreation transportation ,storage ,power generation,etc,.All the structure should sustain the loads coming on them during their service life by possessing adequate strength and also limit the deformation by possessing enough stiffness, Strength of a structure depends on characteristics of the material with which it constructed Stiffness depends upon th cross sectional and geometrical property of the structure. Structural analysis deals with the mechanism of degeneration of loads applied on the system into local element force, using various theories an theorem enunciated by eminent engineer an investigators. It also deals with the computation of deformations these members suffer under the action of induced forces. Simple structure are mostly gravity load resisting type. Structure systems normally recruit a relative a structure are rcc frames column and beam used concrete planks, steel precast concrete , cast-in situ concrete etc. the structure for appropriate system and combination of a system evolution of the following 10 factor.

A. Soil condition
B. Relevant codes
C. Potential changes in codes according to need
D. Flexibility
E. Height of building
F. Delivery of material and construction time
G. Schedule the construction
H. Cost of selected system
I. Impact on section
J. Elegance and particular issues

1) Gravity load

Dead load which load are weight for structure elements those load are as well as acting on live load when structure a uniformly and point load effect the structure constitute a load acting on structure a large a part to find the method to proper disturb the load weight for structure is called a dead load.

Volume 5 Issue V, May 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

2) Moving load

One of the promising approaches for earthquake resistance design in future approach in a building live load consider very important factor.

3) Earthquake load

Determination of design lateral forces is the primary requirement of seismic analysis and design the building .design to lateral forces are often carried out by a condition static lateral effective a forces and dynamic analysis of structures.

4) Wind load

Wind the consideration of soil flexibility by elastic springs considers SSI effects only partially due to lengthening of time period of structure that usually results in the reduction of base shears and moments.

II. METHOD OF ANALYSIS

A. Etabs

Etabs well defined grid system enables, for example, elevation view in the modal to occur at defined grid lines objects added to the modal to be placed accurately to be meshed for analysis. that has a given loading is stable under composition can be regarded as. The first structure, the framework of analysis estimates, while the weight shear that beam and bending moment calculating task force and what are the type belongs to the analysis phase. Type of content design phase and is ready to oppose dimension load. After we analyze it S.F. to count D and D is a loading of complex B.M. a value first structure such an amount the value to learn the condition make a high rise structure to have worked method.

B. Auto Cadd

Auto cadd software to used a line plan and plot a graph the project such large contain a value must an them should be proper the value make a condition auto cadd to the plan plot the etabs such an value the rest a section to have a value to learn this software every engineer ‟ s makes a compulsion. We plan AutoCAD drawing, used for a residential building upgrades. We also design details of a stair case reinforcement details and show AutoCAD. AutoCAD software a lot easier to learn and is very user friendly for anyone to handle and can learn quickly. Learn a few commands in AutoCAD is required to draw.

III. RESULTS

Table1:Seismic.Zone.Facto

Zone	Seismic coefficient of 1984	Seismic zone factor (z of 2002)
V	0.08	0.36
IV	0.05	0.24
III	0.04	0.16
II	0.02	0.1

Table 2 : Axial forces in static analysis

Static Analysis			
		Axial Force Kn	
BEAM	L/C	OMRF	SMRF
36	1EQ+X	3537.0	3916.4
99	1EQ+X	3339.8	3663.0
162	1EQ+X	3127.8	3409.7
225	1EQ+X	2908.8	3156.5
288	1EQ+X	2685.0	2903.6

Volume 5 Issue V, May 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Table 3: Bending moment in static analysis

Static Analysis			
		Bending moment –Z kNm	
BEAM	L/C	OMRF	SMRF
36	1EQ+X	148.74	53.143
99	1EQ+X	100.59	52.919
162	1EQ+X	85.92	52.592
225	1EQ+X	84.28	52.094
288	1EQ+X	84.29	51.357

Table 4: Torsion in static analysis

Static Analysis			
		Torsion kNm	
BEAM	L/C	OMRF	SMRF
36	1EQ+X	-0.617	-0.059
99	1EQ+X	-1.520	-0.059
162	1EQ+X	-1.587	-0.059
225	1EQ+X	-1.643	-0.059
228	1EQ+X	-1.658	-0.058

Table 5.: Torsion in dynamic analysis

Dynamic Analysis			
		Torsion kNm	
BEAM	L/C	OMRF	SMRF
36	1EQ+X	-0.617	-0.059
99	1EQ+X	-1.220	-0.059
162	1EQ+X	-1.150	-0.059
225	1EQ+X	-1.643	-0.059
288	1EQ+X	-1.520	-0.058

Response spectrum analysis are more important analysis earthquake are effect very serves condition t building for an methodology thus a earthquake effect must an condition such large to due condition may to least are effects spectrum those a condition may be lost a value may such an rest to a value spectrum an condition earthquake analysis a very important heavily to a value make a effectively to arrest a value those an earthquake an method such a effectively are lading are most difficult earthquake analysis response spectrum.

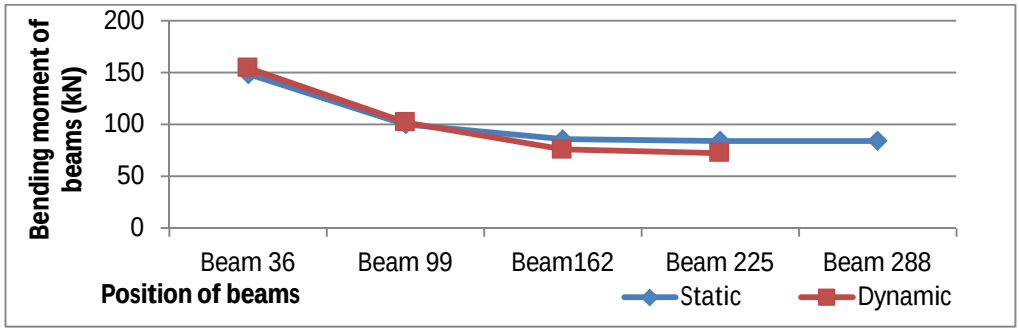


Figure 1: Static and dynamic analysis of axial forces in OMRF

Volume 5 Issue V, May 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

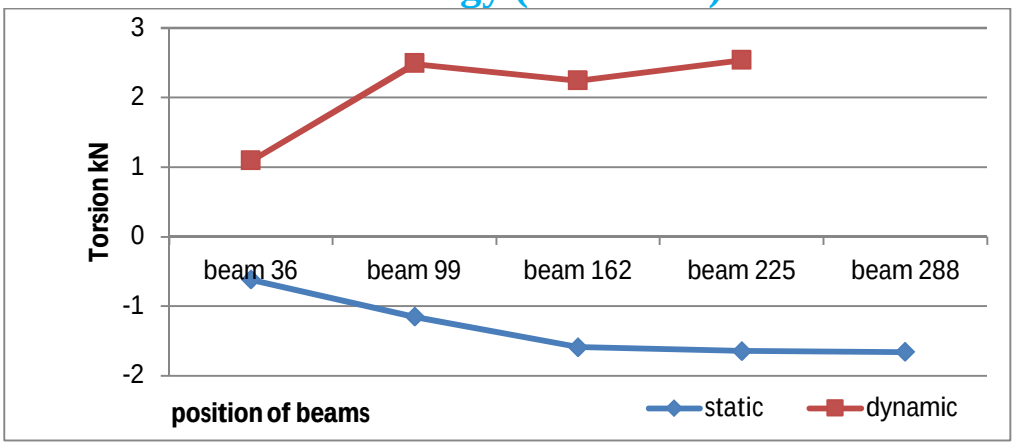


Figure 2: Static and dynamic analysis of torsion in OMRF

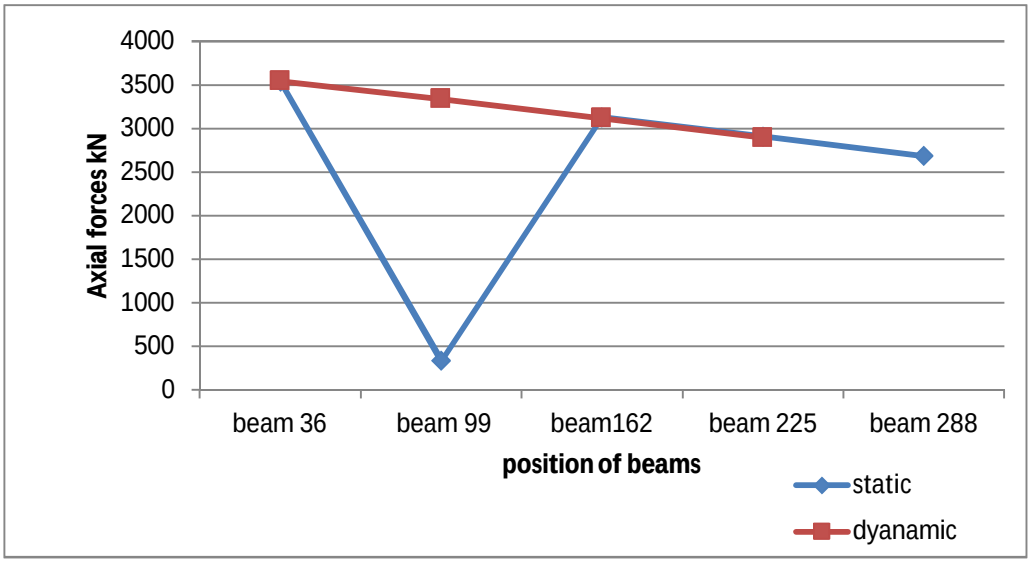


Figure 3: Static and dynamic analysis of displacement in OMRF

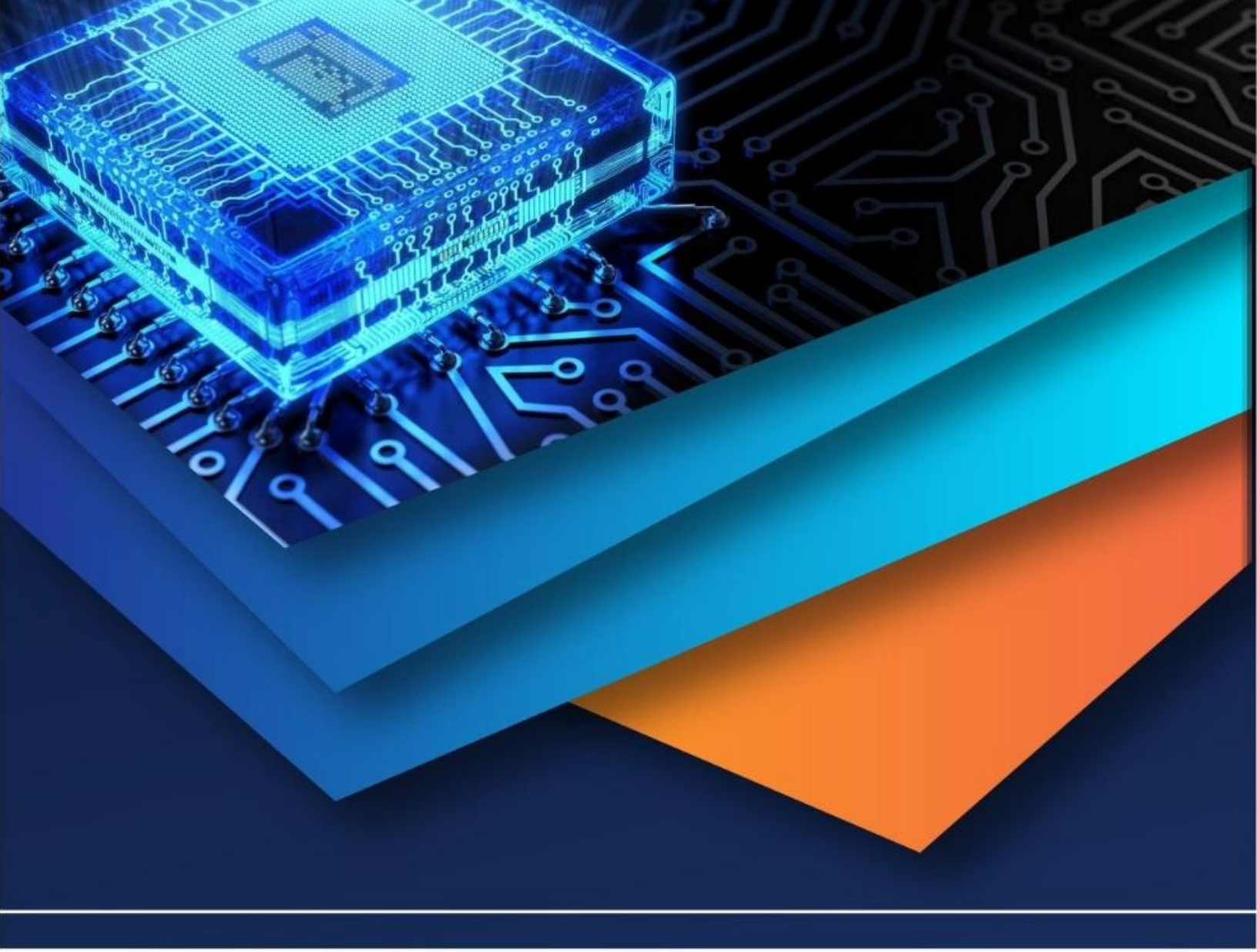
IV. CONCLUSION

The obtained results of static and dynamic analysis in OMRF & SMRF are compared for different columns under axial, torsion, bending moment and displacement forces. The results in graph-1 shows that there is equal values obtained of axial forces in static and dynamic analysis of OMRF structure. The results in graph-2 shows that the values are obtained for torsion in static analysis are negative and dynamic analysis values are positive. The results in graph-3 here we can observe that the values for bending moment at dynamic analysis values are high in initially for other columns it decreased gradually as compared to that of static analysis. The results in graph-4 we can observe that the values for displacement in static analysis of OMRF values are more compared to that of dynamic analysis values of same columns. The results in graph-5 shows that the values obtained of axial forces in dynamic analysis of SMRF structure values are high compare to static analysis. The results in graph-6 shows that the values are obtained for torsion in static analysis are negative and dynamic analysis values are positive with more difference. In the results graph-7, we can observe that the values for bending moment at dynamic analysis values are more as compared to that of static analysis SMRF structure. In the results graph-8, we can observe that the values for displacement in dynamic analysis of SMRF values are gradually increased compared to that of static analysis values of same columns. The static and dynamic analysis of OMRF & SMRF values are observed. Finally it can conclude that the results of static analysis in OMRF & SMRF values are low when comparing to that of dynamic analysis in OMRF & SMRF values. Hence the performance of dynamic analysis SMRF structure is quiet good in resisting the earthquake forces compared to that of the static analysis OMR.

Volume 5 Issue V, May 2017
ISSN: 2321-9653

REFERENCES

[1] Wang,G.,Wang, w., KatayounB.'Earthquake instrumentation of high –rise building , progress in natural science, volume 19, Issue 2,10 february 2009
[2] A.Vijay kumaret.al. Pushover,-"analysis of existing RC structure '', european journal of scientific research ISSN 1450 -216Xvol.71 NO.2 (2012)
[3] P.S. Kumbhare ,A.C.Saoji-"Multi-storeyed building '',International Journal of Engineering Research (May –June 2012)
[4] P. P. Chandurkar1, Dr. P. S. Pajgade2, - "Seismic Analysis of RCC Building with and Without Shear Wall" (IJMER June 2013)
[5] VenkataSairam Kumar.N1, Surendra Babu.R2, Usha Kranti.J3 – "Shear walls – A review" (IJIRSET February 2014)
[6] P.Kalpana1, R.D. Prasad 2, B.Kranthi Kumar3 – " Analysis of Building with and without Shear Wall at Various Heights and Variation of Zone III and Zone V" (ISSN December2011
[7] Bureau of Indian Standards: IS-875, part 1 (1987), Dead Loads on Buildings andStructures, New Delhi, Indian
[8] Dr. S.R. Karve& Dr. V.L. Shah - "Illustrated design of Reinforced concrete Buildings", Structures Publications.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY