

# STUDY ON THE EFFECT OF BEHAVIOUR OF STRUCTURES ON SLOPED GROUND SUBJECTED TO DYNAMIC LOADS

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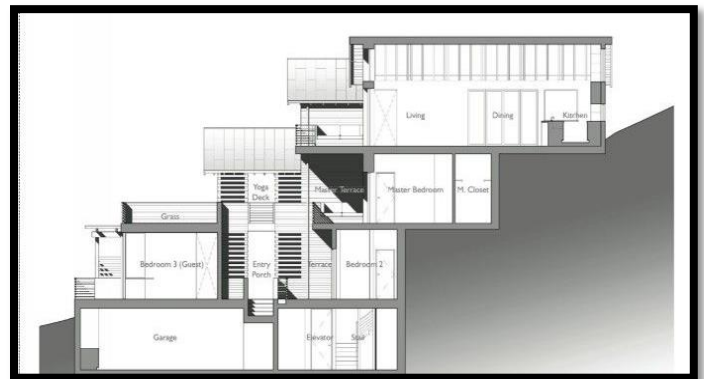
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**Abstract:** Considering the development of the nation in India where the shortage of land and also as well as including some urbanization and industrialization as an huge impact on development of the sky scraper multi-storey structure which is considered to be having some of the uneven areas. success should be considered under different kind of zones where some of the important relation has been considered in order to overcome all the unsymmetrical and also as well as in consistency and including some of the important factors like vertical plane and horizontal irregularities where these kind of factors will affect the buildings and its lifespan also. the important aim is to achieve the proper consistency in the structure including some of the important ground level consideration of basic principle. where considering the hilly regions and other slope areas which are not to be considered as an easiest method to develop the structures. considering the slope areas, the development of the structure is becoming one of the important challenges which has to be overcome by using some important correlations and also some design consideration where the structure development in slope areas can be easier and also with the help of old and conventional methodology by using including the modern technology we can achieve the greater stability in The structures. some of the important factors which are considered like a torsional irregularity displacement and also as well as share force which are the important correlation must be considered in order to overcome all kinds of design failures which may be occurred later days. the model which are to be developed in Etabs is considered to be one of the best programming software where we can study all kind of response which is recorded inside and outside the structure and helps to study the proper correlation in between all kind of reserves like relocation story share and important displacement factors. These buildings are considered to be regular and also as well as wearing in height and columns but in the present study all kind of analysis and response spectrum analysis is carried out as per Indian Standard code book 1893 part 1 2002 and also all kind of slope analysis is considered by using the software known as e-tabs.

## 1. INTRODUCTION

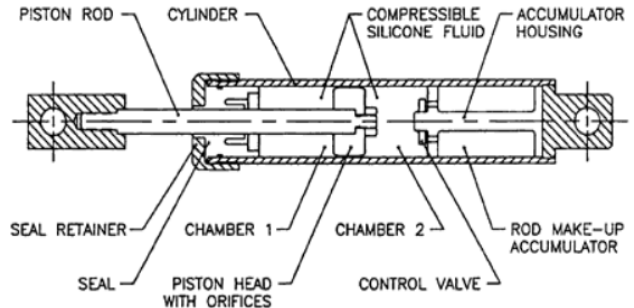
Considering the important principles of the sesame cloud including some of the natural disasters at certain point the structure is involved in some kind of seismic forces where the misfortune that all the living human beings can be undergo the disaster events. the harm in the structure is such a way that that the complete structure may collapse under the forces of seismic behavior and which may lead to use property losses and also as well as life losses as well. and structure must be built in a such a way that that it can withstand all kind of seismic intensity is activities and undergo a minimal damage such that the property loss can be reduced. the different kind of modern technology methodology is available such that we can reduce these laws and improve the efficiency of the structure such that it can be with stand the all kind of seismic forces over the years. it is highly sufficient to extend the horizontal forces such that all kind of methods which can be used in order to protect the slope or enter structure can withstand all kind of forces and natural disasters in addition to vertical conditions as well.



Consider the storage of Lion among the all kind of forces which has developed under the consideration of ground about different significant of the values which are considered under software analysis. considering the slope the design of the structure is comes under the proper consideration of the different aspects. structural and also as well as economical all kind of aspects must be considered such that it can which time all kind of natural disasters, especially systemic. there are many kinds of

structures which can be built under slope which are like one of the examples can be given by using solid wood or also as well as bamboo structures but the development also consider in the aspects of design and also as well as modern technology which can be used for the further analysis purpose such that the proper methods can be drawn by using different kind of methods response spectrum analysis of sometimes static analysis and also one more method is equal static analysis. what according to the all kind of research the response spectrum analysis holds good when compared to all kind of different aspects which the structure will undergo. conditions zone values and also as well as soil conservation is taken into account, in the present investigation the push and also as well as dynamic attributes which are consider, for the analysis by using the eight apps where the feature will provide the proper story editing and also as well as displacement and including some story share values where we can check the proper design approach is good or not. this project is highly depending upon the number of base selection depending upon the slow such that we can provide a proper modern technological method to the structure so that it can withstand all kind of specific behaviors over its lifetime.

process the earthquake energy is converted to heat energy, and this heat is shrinks to the atmosphere.



### Objectives

- To determine displacements variations in the structure with and without fluid viscous damper.
- To determine base shear variations in the structure by using fluid viscous damper in RC buildings.
- To compare other parameters such as story drift, shear and displacement.
- Comparing the results along and concluding the effect of viscous damper over the building in slope

### 2. LITERATURE REVIEW

Chandrasekaran and Rao (2002);investigated analysis and the design of multi- storied RCC considering the buildings for the various kind of such activities and also considering the complex regions where the structural system which is considered for the analysis has to be done some important modern methodology which has to be applied such a way that the three-dimensional Framework considering the slope with different angles like 50 degree 10 degree and 150 degree analyse must be done through all kind of these angle difference such that the systemic forces which can be compared with that of axial force shear force moment and also as well as noted displacement stress and other kind of support reactions which is including beam and also as well as column which is considered as per asIS:1893- 2002 to the last version IS:1893:1984.

P. Manjunath and Yogeendra R. Holebsgilu In this examination 10 storied 3D demonstrate we can achieve the greater stability in The structures. some of the important factors which are considered like a torsional irregularity displacement and also as well as share force which are the important correlation must be considered in order to overcome all kinds of design failures which may be occurred later days. the model which are to be developed in Etabs is considered to be one of the best programming software where we can study all kind of response which is

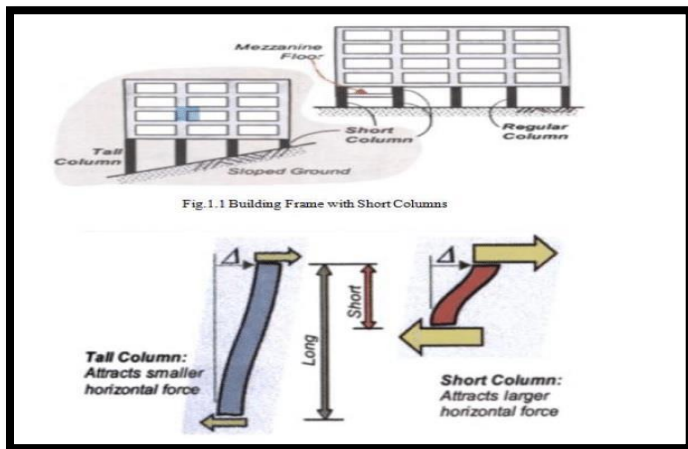


Fig.1.1 Building Frame with Short Columns

### Viscous Dampers

Fluid viscous damper are velocity-dependent system, fluid viscous damper devices are originally developed for military applications. The fluid viscous damper consists of an orifice through which some fluid is flowing and this is which the phenomenon is used for the operation of fluid viscous damper. There are various chambers through silicone oil is flowing steadily. This oil is used for there as on that it is steady for long time, it is un wavy and inert. Also it is non-toxic un harmful and does not catches fire easily. The potential difference is created between the two chambers. This difference applies the pressures of that oil flows through the given path. In this

recorded inside and outside the structure and helps to study the proper correlation in between all kind of reserves like relocation story share and important displacement factors. where the direction should we are located at zone number 5 the performance which can be analyzed by using the Indian Standard code book ISO 1893 2002 and all kind of non linear analysis which is considered from another code book known as ATC 40.

**Birajdar and Nalawade (2004); studied “seismic performance of buildings resting on sloping ground”** considering the twenty years of study under the four kind of different varieties of RCC structure there are three different configuration which has considered to be one of the major step back in the structure the first set back is consider is which is situated at slope of 27 degree which is supposed to be at the level of horizontal consideration. the study which is considered to be under the specific response and also as well as various conditions which is ranges from the height of 42 Levin and also as well as 3 Base which is considered to be along the slope direction and another slope which crosses over one Bay. the location is considered to be 3rd zone, and all kind of 3D analysis is considered by using the response spectrum analysis method where we can easily find out the proper factors which is affecting the structure.

**Ravikumar C. M et al (2012); focused on the “study of performance of irregular”** Consider all kind of vertical irregularities of the structure like important geometrical conditions and also some of the important resting on sloping where some of the two types of configuration which is necessary to analyses such that the building which is in the X direction and the slope which is considered to be at the Y direction the based should be in the number of 524 where the direction should we are located at zone number 5 the performance which can be analyzed by using the Indian Standard code book ISO 1893 2002 and all kind of non linear analysis which is considered from another code book known as ATC 40. the observation done that the slope ground which is considered to be structured for the building which is having large kind of forces which consider around to be 6019.2 kilo newton around 25 to 55 percentage of regular displacement. And the displacement is also found to be around 83.4 mm which is considered rupee higher than that of the normal structures.

### 3. METHODOLOGY

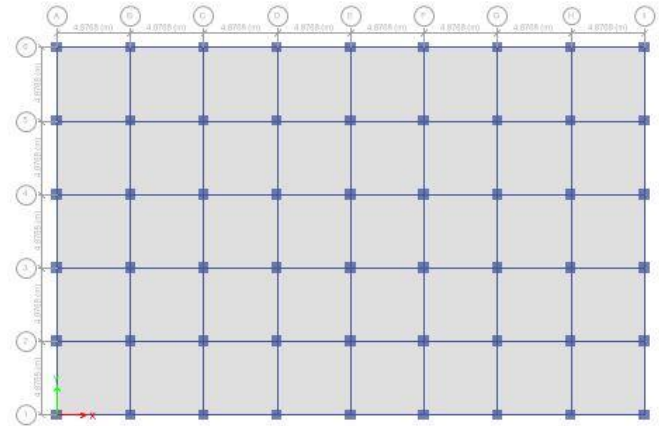


Figure: Building Layout

#### The data's taken for the analysis

Grade of concrete: M45

Grade of steel: Fe550

Beam: 700×500mm

Column: 700×700mm.

One way slab : 200mm

Story Height: 3m

Zone: V

Zone factor: 0.36(ReferTable2)

Importance factor: 1.0(ReferTable6)

Response reduction Factor: 5.0(ReferTable7)

Soil Type : Medium

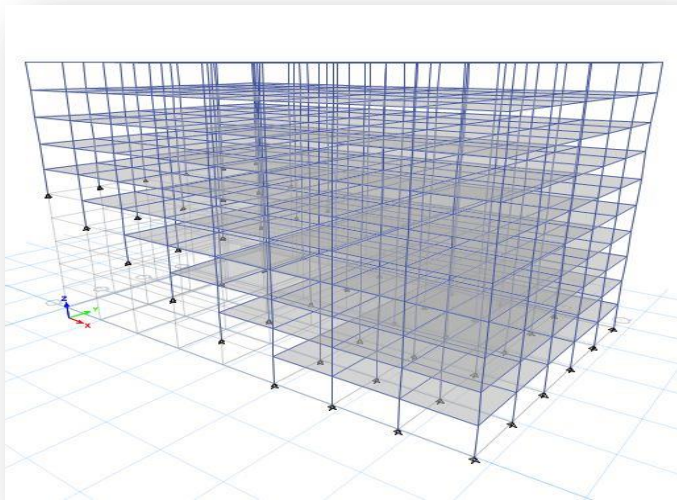
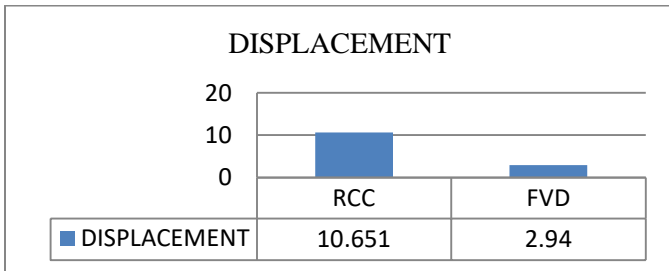


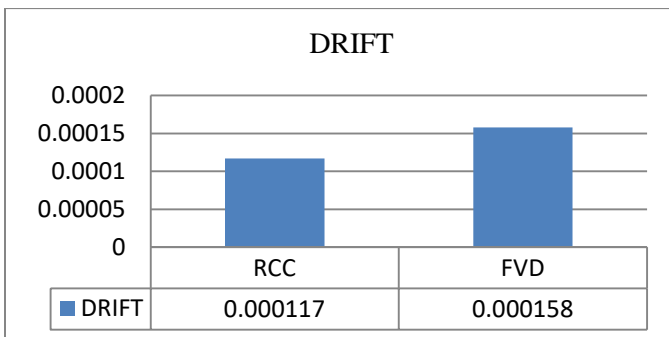
Figure: Wire Frame

#### 4. RESULTS

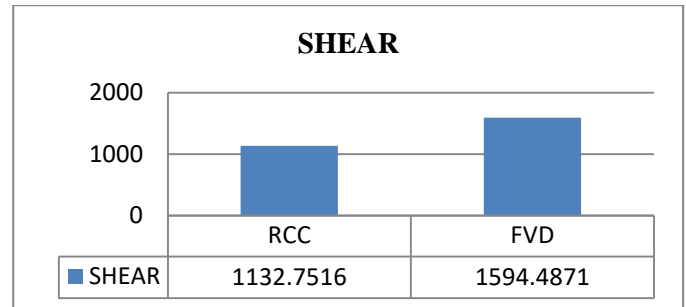
##### 1. Displacement (X- Direction)



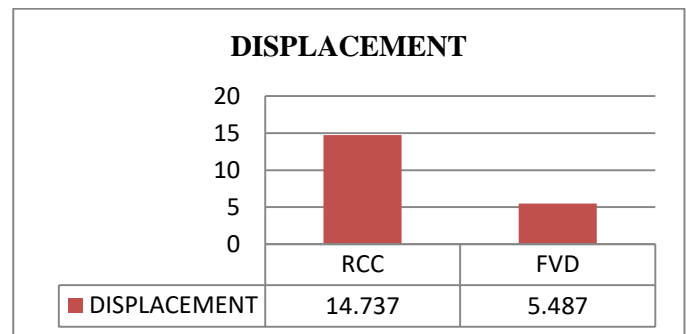
##### 2. Drift (X- Direction)



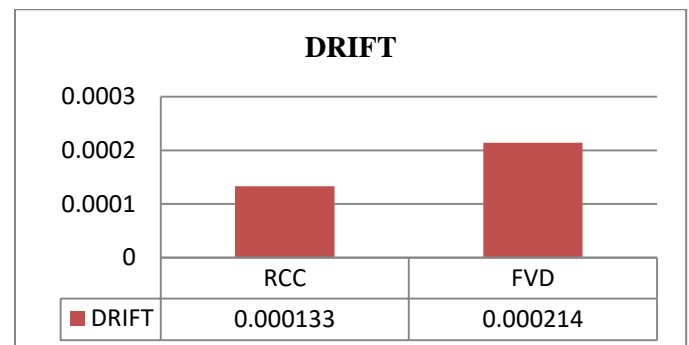
##### 3. Shear (X - Direction)



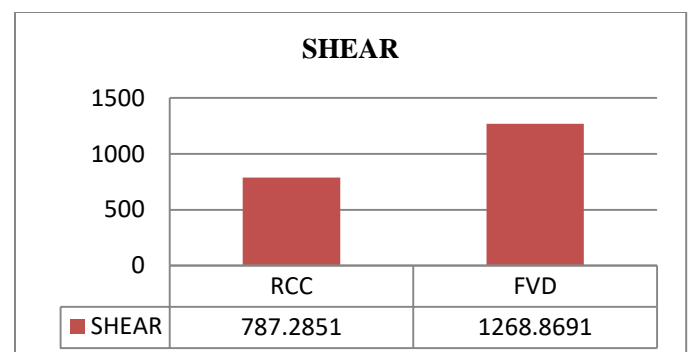
##### 4. Displacement (Y-Direction)



##### 5. Drift (Y- Direction)



##### 6. Shear(Y - Direction)



## 5. CONCLUSIONS

1. By checking the final comparison for displacement, drift and shear the final values obtained for the all the three reserves holds good for damper model.
2. Considering all the tables and respective graph we found that cement damper and share wall performs better when compared with all other models which is having less value and holds good to consider the damper and shear wall model performs better.
3. Considering the forces values the damper performs better as well as in drift analysis also the model performs better.
4. Consider in the share forces the RCC model which is the performs better damper and the normal model appears to be a better choice hence in consideration model of damper performs well in consideration.
5. Finally seeing all the three results displacement drift and story share values we can conclude that the damper model is better in slope construction of multistory when compared with all other model

## 6. REFERENCES

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