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Comparative Seismic Analysis of Normal Rcc multistoried building with Dampers using Etab Software

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Abstract -The earthquake is a natural miracle and which is damage and harms the Rcc structure and it is required to structure study the behavior of the some forces and stresses reduced during on earthquake in Rcc tall building structures.

The earthquake is suddenly come on the earth and some problems are created at the tall building structure like vibrating forces at base of structure and the force vibration produces the vacillation which is cause of tremendous harm or damage to the structure, to avoid type of harm and damage something structure system we are like damper use in rcc tall structure system as we are able to resist such the type of earthquake forces in a very effective stages.

Dampers are the devices placed in structure which absorb the forces and vibrations occurring in structure and reduce the deformation and damage, harm of rcc multistory tall structure

This model deals with the performance of Rcc ten storey tall structure with damper and without damper and twenty storey with damper and without damper with same plan area and same loading conditions, load combination and frequency method is used to analyse the structure. Comparison of the system and buildings with some kinds of method like forces,stiffness,drifts,displacements, bending moments, frequency's, and deflections in all direction a top and bottom of structure and to find he efficient of damper system and structure used for designing the multistory building rcc tall streucture.

Key WordsViscous damper, Seismic analysis Periods Frequency

1.1 GENERAL

Earthquake is a natural hazard that develop suddenly due to shaking of ground and instability of ground and due to that the natural imbalance occurs and forces develop in ground due to tectonic plate movement and due to that movement the volcanoes and earthquake and other natural disaster occurs and it directly harm the structures and houses and different rcc structures and collapse the structures therefore the structure engg should design the structure that will easily resist earthquake forces and reduce the effect of such naturally occurring hazards

2.OBJECTIVE

The main objective of work is to do comparative study of seismic behaviour of selected four models normal RCC multi-storeybuilding with and without viscous damper system using Etab software

Selection of appropriate type of damper for the chosen building that will be more resistant to earthquake.

Compare and study of different specifications such as shear force, bending moment, stresses, of all the models and check the structural work of the high-rise structure or building with or without the dampers with same plan area and same loading conditions usingEtab 2016 software.

3. METHODOLOGY

In this structure using 4 models of the normal Rcc Tenstorey and Tenstorey with damper twentystorey building is made one is of normal Rcc and twenty another is with damper system and analyses of displacement, drift ,force, stiffness, frequency, the analysis is done using Etab software to make an earthquake resisting behavior structure.

3.2 Modeling terms

Using IS 1893: 2000 (part 1) for the following data was used the modeling proceeding of the supplied dampers system walls and fixed building analysis in sap software and design steps of dampers and fixed base analysis

3.3 Max storey displacement

10 storey	**60.943**
10 storey with damper	**53.267**
20 storey	**628.833**
20 storey with damper	**163.23**

3.4 Avg. storey displacement

10 storey	**53.267**
10 storey with damper	**2.751**
20 storey	**624.506**
20 storey with damper	**160.851**

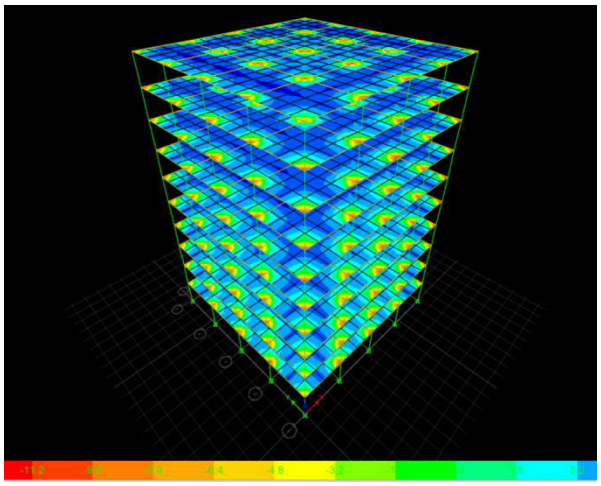


Fig no:1

Max moment in 10 storeyrcc structure

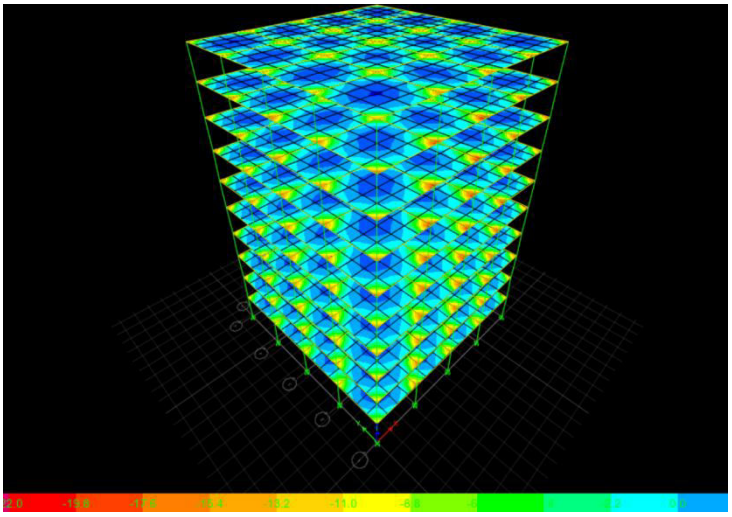
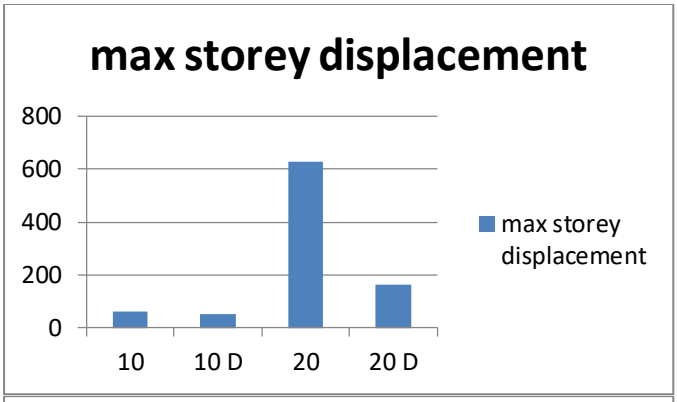
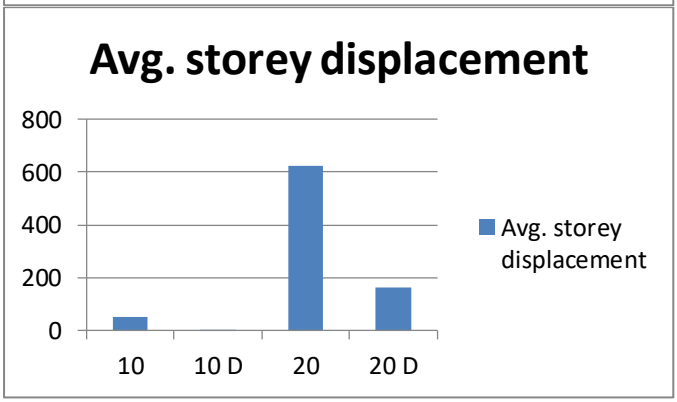


Fig no:2

Min moment in 10 storeyrcc structure





4.RESULTS:

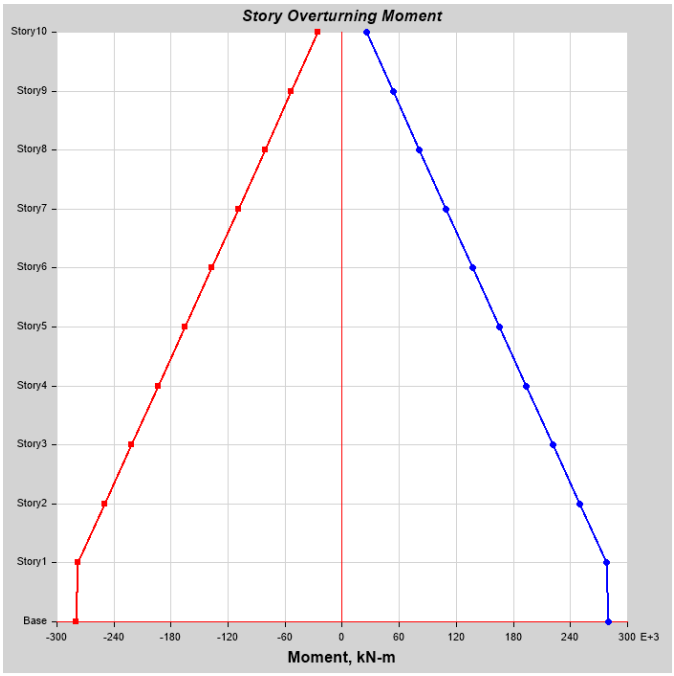
In this project the four cases are analyzed for a ten and twenty storey multistory building and comparative analysis and study is done on the basis of forces and the displacement occurred in static analysis with different load and load combinations as per IS codes are done using E tab software.

Case 1 Ten story normal Rcc structure model

Case 2 Ten story normal Rcc structure with damper model

Table no: 10 Max moment of 10 storey

Story	Elevation	Location	X-Dir	Y-Dir
	m		kN-m	kN-m
Story10	30	Top	25353.9189	-25353.9189
Story9	27	Top	53358.688	-53358.6889
Story8	24	Top	81363.4589	-81363.4589
Story7	21	Top	109368.229	-109368.229
Story6	18	Top	137372.999	-137372.999
Story5	15	Top	165377.7691	-165377.7691
Story4	12	Top	193382.5391	-193382.5391
Story3	9	Top	221387.3091	-221387.3091
Story2	6	Top	249392.0792	-249392.0792
Story1	3	Top	277396.8492	-277396.8492
Base	0	Top	280047.7004	-280047.7004



3. CONCLUSIONS

The models of Rcc multi story building with the same plan area and height with two normal Rcc structure without damper system and two models with damper system is analyzed using Etab software and the compare four models in study made between four models and the following conclusions are drawn from models shown below:

The max displacement at tenstory are decreased as we are provide damper system in multistoried building and other normal rcc building.

The min displacement at top and bottom variation intenstorey are decrease in multistoried building with damper system and other normal rcc multistoried building.

The max storey drift at tenstorey are minimum in multistoried building with damper system and other normal rcc multistoried building.

The min storey drift at tenstorey are in additionally to multistoried building with damper system and other normal rcc multistoried building.

The max storey stiffness is decrease in tenstorey with damper system and other normal rcc building system.

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