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To Study The Effect of Basement with Retaining Walls and The Behavior of The Structure

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ABSTRACT

RC Framed with two storey basement with retaining walls are designed for the same seismic hazard in accordance with the applicable provisions given in Indian codes. Generally these buildings are designed as RC framed structures without retaining wall. In the present paper an investigation has been made to study the behaviour of RC frames with retaining wall and without retaining wall when subjected to static earthquake loading. The results of RC framed with infill effect are compared and conclusions are made in view of IS-1893(2002) code.

Keywords : basement with and without retaining wall

I INTRODUCTION

In the past, during design/analysis processes of engineered structures, it was assumed that the foundation of a structure was fixed to a rigid underlying medium. In the last four decades, however, it has been recognized that SSI alters the response characteristics of a structural system. In important engineered structures,

The estimation of earthquake motions at the site of a structure is the most important phase of the design or retrofit of a structure. Because of the large number of assumptions required, experts in the field often disagree by over a factor of two as to the magnitude of motions expected at the site without the structure present.

If a lightweight flexible structure is built on a very stiff rock foundation, a valid assumption is that the input motion at the base of the structure is the same as the free-field earthquake motion.

This assumption is valid for a large number of building systems since most building type structures are approximately 90 percent voids, and, it is not unusual that the weight of the structure is excavated before the structure is built.

All structures are effected soil-structure interaction with varying emphasis in the earthquake excitation as known. Especially, for structures with slenderness and heavy mass, the soil effects should be considered for different soil properties.

In this paper two models makes of twelve storey building with two storey basement with and without retaining wall.

In this paper displacement, shear force and bending moment analysis is carried out and compare for both model.

DATA TABULATION:

In this study, two different models of a twelve storey building symmetrical in the plan were considered. Model plan dimension is 15m*12m and a storey height of 3.0m each in all the floors.

Further inputs include unit weight of the concrete is 25 kN/m³, unit weight of masonry is 20 kN/m³, Elastic modulus of steel is 2 x 10⁸ kN/m², Elastic Modulus of concrete is 22.36 x 10⁶ kN/m², Strength of concrete is 20 N/mm² (M20), Yield strength of

steel is 415 N/mm² (Fe-415) and Live-load is 2 kN/m². The following properties have been used for soil data
Angle of internal friction $\phi = 30^\circ$
Density $\rho = 18 \text{ KN/m}^3$

Following two different models are investigated in the study.

Model I : Twelve storey building with two storey basement without retaining wall

Model II: Twelve storey building with two storey basement with retaining wall



Fig.1 shows plan of building

STATIC SEISMIC ANALYSIS

In this study, static seismic analysis was used to determine earthquake response of the structure using STAAD PRO. software. In the static seismic analysis, the base shear is calculated using the first mode period of the building. The calculated design base shear force V_b , is then distributed over the height of the building. The design lateral force Q_i , at the floor i is obtained by,

$$Q_i = V_B \frac{W_i h_i^2}{\sum_{j=1}^N W_j h_j^2}$$

Where,
 Wi = seismic weight of floor i
 hi = height of floor i measured from the base
 N = total number of floors in the building
 The design base shear is computed by STAAD in accordance with the IS: 1893 (PART 1)
 Design seismic base shear Vb = Ah.W (2)
 Where, Ah = Design horizontal acceleration spectrum

$$Ah = \frac{Z I Sa}{2 R g} \tag{3}$$

W = seismic weight of the building.
 Where,
 Z = zone factor taken as 0.16.
 I = Importance factor taken as 1.
 R = Response reduction factor taken as 5.
 Sa/g = Average response acceleration coefficient

COMPARISON OF RESULT

As per IS: 1893 (2002) static seismic earthquake analysis of the models for with and without retaining wall. Comparison of the storey deflection, axial force, and bending moment of the models has been graphically shown in fig.3,fig.4 &fig.5 Base shear of the building comparison shown in the Table 1.

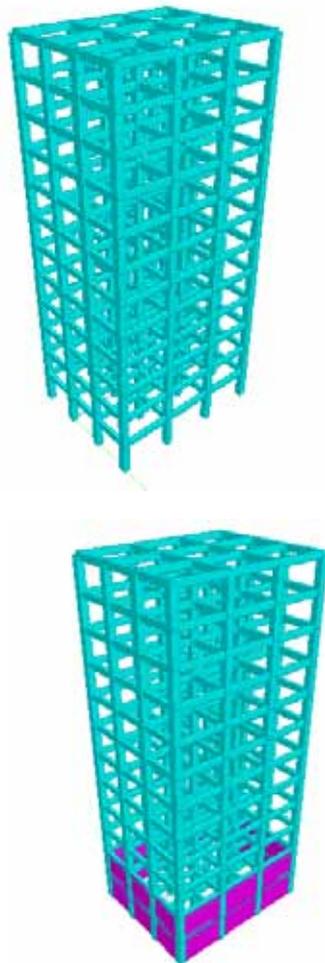


Fig.2 shows model 1 and model 2

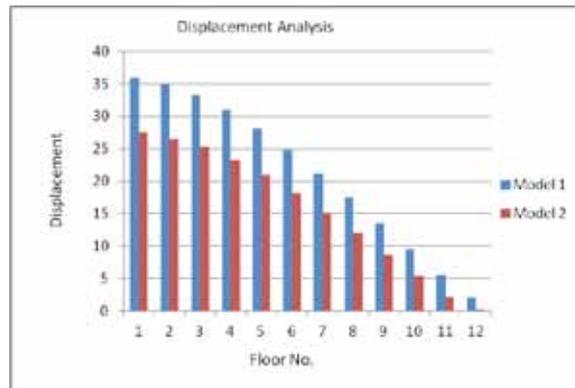


Fig.3 shows displacement in different floor

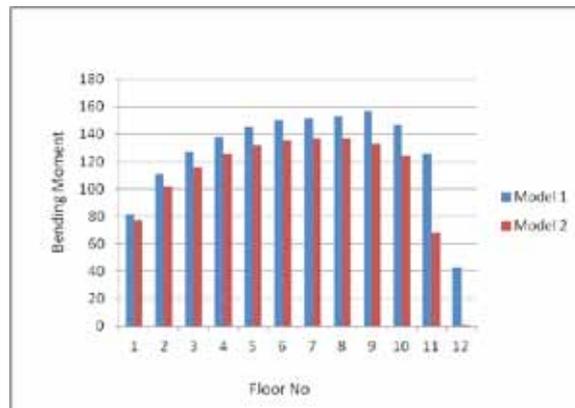


Fig.4 shows bending moment in different beam

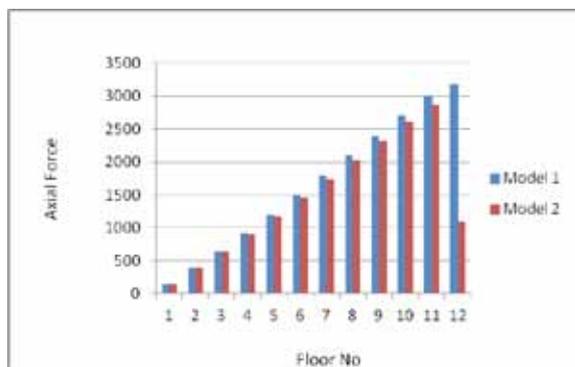


Fig.5 shows Axial force in different column

Comparison of base shear of the both model System
 Base shear (kN)

Model I 1137.90

Model II 957.77

Conclusion:

The static seismic earthquake behaviour of the two models is investigated The performance of model 1 w.r.t. displacement are large compare to model 2. For axial force are less in last two column in model 2 due to retaining wall effect compare to model 1. while a bending moment of model 1 is more than the model 2 and also in last two column bending moment is reduced to zero for model 2 due to retaining wall effect.

REFERENCES

Stavridis L.T. 2002. Simplified analysis of layered soil structure interaction. J. Struct. Div. ASCE.128(2): 224-230. | Javier A., Luis E. and Perez R. 2003. Soil-structure interaction in yielding systems. J. Earth and Enviro. Engg. pp. 443-454. | Dutta S.C., Bhattacharya K. and Roy R. 2004. Response of low-rise buildings under seismic ground excitation incorporating soil-structure interaction. J. Earth Engg. and Struct. Dyna. 24: 893-914. | Junvi Y., Zhang C. and Jin F. 2004. A coupling procedure of FE and SBF for soil structure | interaction in the time domain. J. of Earth. Engg. And Vibration. pp. 51-58. | Reinforced concrete vol. II H.J. Shah. | Banerjee, P.K. and Davies, T.G. (1978), "The behaviour of axially and laterally loaded single piles embedded in non-homogeneous soils", Geotechnique, 28(3), 309-326.



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