

**Review Paper On RCC Structure With Flat Slab**Sumit Sharma¹, Ashish Yadav² and Mukesh Dubey³¹Research scholar, M.Tech Structural Engineering With Spl. In Offshore Structures,
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Abstract : flat slab building structure are significantly flexible than traditional concrete wall structure or frame structure, Thus become more vulnerable to seismic loading condition. Flat slab system are vastly used in multi-storey building because of the saving in storey height and construction time and it also provides good aesthetic appearance. As well as for its flexibility in the architectural remodeling. In construction activities flat slab are using quite common mainly in public structure. Flat slab are normally used for the structure due to various advantage of flat slab system over conventional slab system. Flat slab are becoming popular and gaining importance as they are economical. flat slab is better understand as the slab without beam, resting directly on supports by virtue of that bending moment and shear force are developed close to the column aim of this paper is to present the advantages and disadvantages of flat slab in construction.

Key Words: Flat Slabs, RC Frame building, Storey displacement, Base shear, Response Spectrum Method.

I INTRODUCTION

In general normal frame construction utilizes columns, slabs & Beams. However it may be possible to undertake construction without providing beams, in Such a case the frame system would consist of slab and column without beams. These types of Slabs are called flat slab, since their behavior resembles the bending of flat plates. Flat slab is a reinforced concrete slab supported directly by concrete columns without using beams. RCC flat slabs are one of the most popular systems used in various types of buildings, car parks and many other structures.

TYPES OF FLAT SLAB

There are four types of flat slabs are commonly used in buildings. They are as follows

- (1) Typical flat slab
- (2) Slab without drop and column with column head.
- (3) Slab with drop and column without column head.
- (4) Slab with drop and column with column head.

II LITERATURE REVIEW

Various literature has presented in the form of technical papers on the flat slab. Various issues and points are covered in the review paper .like seismic analysis of flat slab building as per seismic zones , storey displacement , storey drift and equivalent static and response spectrum method as per different codes. Some of those are discussed below

Anghan Jaimis, Mitan Kathrotiya, Neel Vagadia, Sandip Mulani march (2016) This paper specify the comparative study of slab in this paper two type of slab is used , they are flat or conventional slab. During earthquake heavy damage occur in building . So this paper help us to understand the behaviour of flat slab or conventional slab in seismic zones. This paper also help us to understand the time period of the building. In comparison of the conventional R.C. building to flat slab building, the time period is more for conventional building than flat slab building because of monolithic construction. In flat slab building base shear only increases . But in case of conventional slab base shear decreases after 6 floor.

Vinod Goud; Vol. 06, Issue 09 (Sep. 2016), This paper concern on the Analysis and Design of Flat Slab with and without Shear Wall of Multi-Storied Building Frames . by this paper we conclude that value of storey drift does not exceed permissible limit i.e. 0.004 times the storey height. In case of flat slab with shear wall the thickness of the building changes with the storey height. And the surface shear and bending stress increases in 10 to 20 storey building and decreases in 20 to 30 storey building. And the von mis stresses at top and bottom increases in both the case with and without shear wall.

Mohd Rizwan Bhina, Arnab Banerjee, D.K.Paul 07 October (2014) This paper concern with Different aspect of flat slab building over a conventional building . in this paper we consider the three storey building with flat or conventional slab

.by performing static analysis on the 3 storey building by using Indian is 456 and euro code we conclude that Indian code suggest more reinforcement and stiffness as compare to euro code. by performing response spectrum analysis we get that building with flat slab is more flexible as compare to building with conventional slab.

B.Anjaneyulu, K Jaya Prakash vol. 04, issue 02 feb(2016) flat slab has more advantage than the conventional slab it provide more structural stability to the building and give the aesthetic view to the building. For designing purpose of flat slab we can use post tensioning as well as conventional reinforce concrete. The cost of post tensioning for designing flat slab is higher than the reinforce concrete design. Design of conventional reinforced concrete. flat plate/slab in India, utilizing Indian codes, has many shortcomings, which have to be addressed and revised soon

S. N. Utane, H. B. Dahake Volume 5, Issue 2, March (2016) when we compare a industrial structure constructed by using waffle system and flat slab system in a square and rectangular layout the displacement is more in case flat slab than the waffle system. As we increase the height of structure, displacement is also increases. Storey shear of the industrial structure is also more in flat slab system than waffle system.

Mohit Jain, Dr. Sudhir S. Bhadauria, Danish Khan Volume-5, Issue-10 (2016) In this paper flat slab system is compare with wide beam system. In this paper we consider the modal of 4 story building. And analysed under gravity and seismic load we conclude that deformation in the building are less in case of flat slab system compare to wide beam system. When we perform linear static analysis under gravity load this is due to when we used flat slab the weight of stricture is reduced. From the seismic analysis it is observed that lateral deformation of comparatively larger magnitude has been observed in case of flat slab. This is due to decrease in lateral stiffness.

III CONCLUSION

As per the above review paper its been observed that thickness of the building having flat slab with shear wall changes with the storey height. Indian code use for deign flat slab suggest more reinforcement and stiffness as compare to European code .flat slab provides more flexibility to the building as compare to conventional slab. we can design flat slab by post tensioning and as well as by conventional reinforced concrete but we prefer reinforce concrete more as cost of post tensioning is higher. Flat slab also provides more stability and aesthetic view to the building. In case of industrial structures constructed in a square and rectangular layout the displacement is more is case of flat slab as compare to waffle system and displacement is increases with the increases in the height of the building. However Indian code for flat slab has many shortcomings , which have to be revised soon

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