Analysis And Design Of G+7 Storey Building Structure With U Boot Beton Slab By Using Is Code Method And Software

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Abstract- *Analysis of any building structure is the most important part of building design, to make the building safe. When the analysis is perfect then and then only the structure will become safe. In this project analysis is considered for G+ 7 storey structure with normal slab. Dead load of slab is too much, so the spacing between the column is minimum we can take only up to 4m. So the u boot beton slab is used. Which will help to increase the strength of slab. It reduces the dead load of slab. U boot betonslab is echo resistant and seismic resistant. Normally if u boot are used in the foundation as a mat then use of pile is not necessary boot technology is used in voided slab so the dead load reduced. So analysis of structure by using software's and manual calculations is performed and compared the result of normal and u boot slab by using advanced software's and make the structure safe and economical is the aim of project. To analyse the slab ansys workbench is used. Which gives exact results of deformation and bending? That result will be compare with the manual calculations. For the slab type of reinforcement is also changed so that it can provide better strength and uniform load distribution*

Keywords- U boot beton slab, SMRF, Seismic behavior and design, Ansys Civil , Ansys work bench, NX CAD, Revit, IS code -Limit State methods

I. STATE OF DEVELOPMENT

PrakashSangamnerkar et al. (2015). Static and dynamic behaviour of reinforced concrete framed regular building.

In this paper he analyzed G + 6 storey building and came to conclusion that behavior of building under static and dynamic conditions for reinforced concrete framed regular building. In this paper he consider the 6 storey building structure behavior under static and dynamic.He analyzed building and concluded that for earthquake resistant structure need to consider static and dynamic behavior for zone II ,III, IV,V.

M. S. Aainawala et al. (2014). Comparative study of multi-storeyed R.C.C.Buildings with and without Shear Walls.

In this paper he analyzed different types of building with different different heights. Like g+8 , g+11 ,g+37 etc. after this he concluded that in the building structure shear wall plays important role. Any building without shear wall has more self weight compare to with shear wall and using this he concluded that with shear wall displacement occur is less than the displacement occurs in without shear wall structure. So for reduce the self weight of building need to design building with shear wall.

PiyushTiwari et al.(7 Oct 2015) OGS open ground building, infill walls, design of building for earth quack resistant structure using IS1893 which revised in 2002.

In this paper he studied the different types of building for different seismic zones by using IS 1893 which is revised in 2002. He studied the applicability of the multiplication factor which is given in IS 1893 :2002 which is 2.5for medium rise and low rise open ground storey building. By using this research paper it is concluded that this method is useful for the box framed rcc structure.By using IS 1893:2002 there are category of building structure and terrain category to divide the building structure and make easy building classification.

Jenn-Shin Hwang et al. (6 March 2006) Experimental study of RC building structures with supplemental viscous dampers and lightly reinforced walls

In this paper they concluded that building get collapsed because of self-weight and the loose soil condition. So they applied the seismic dampers to crate seismic resistant structure. In this paper he tried to reduce the self weight of structure by using shear wall. He replaced the ordinary masonary wall with advanced shear wall so displacement of building will be less.

Sushant s. Shekde(02, 2016)Replacement of inactive concrete by waste plastic

In this paper he reduced the self-weight of slab by using u boot beton slab. U-Boot Beton is a recycled polypropylene formwork structure, which is biproducts of industries, designed to create lightened voided slabs. U-Boot is used for structural elements of different types such as slabs or foundation grants solution preformation considerable designing technical and economic. Disposable formwork for voided slabs in reinforced concrete cast on site. U-Boot beton is used to create slabs with large span or that are able to support large loads without beams A lightweight, cellular concrete made by infusing an unhardened concrete mixture.

A. Churakov(6 2014) Biaxial hollow slab with innovative types of voids

In this paper he conclude the to reduce the self weight of slab creating voids in the slab it is advantageous. Shear resistance is basic difference between the solid slab and a hollow biaxial slab. Result is after reducing the concrete volume, the shear resistance will also be reduced. In bubble deck slab or in the u boot beton slab the amount of concrete is reduced means that concrete volume is removed by placing the u boot beton block whichispolypropelene material which get from the wastage of plastic.

Daniela Mačková et al. (2015)Comparative analysis of modern lightweight Construction

In this paper he reduced the self weight of slab by placing bubble and u boot.U-Boot beton is a recycled polypropylene formwork that was designed to create two-way voided slabs and rafts. The use of U-Boot beton formwork makes it possible to create mushroom pillars, with the possibility to have the mushroom in the thickness of the slab. To the conic elevator foot, immerging the U-Boot beton formworks in the concrete casting will create a grid work of mutually perpendicular beams closed from the bottom and the top by a flat plate that is created with a single casting; this results in considerable reduction in the use of concrete and steel.U-Boot betons used to create slabs with large span or that are able to support large loads without beams. Light and quick and easy to position, thanks to their modularity the designer can vary the geometric parameters as needed to adapt to all situations with great architectural freedom.

Mrs. Gayatrirajendravaishampayan (may-2017)earthquake resistant structures using voided slab Systems

In this paper he concluded that the U boot technology is a very advanced, economical, architectural and fastest method of a slab. The usage of u boot technology is very rare due to lack of awareness in our country. As we all have responsibility of saving renewable and natural resources for our future generators, this technology should be utilized more. The benefits of using u-boot Beton voided slabs rather than conventional slab are greater than for larger spans. Larger spans are capable of using larger voids that reduce the overall weight of the slab while meeting load capacity requirements. U-Boot Beton slab system provide an excellent alternative to solid concrete slabs for many application. The weight and cost savings as well as architectural flexibility can be achieved with U-Boot Beton. From the study the following conclusion are obtained

II. CONCLUDING REMARKS

With reference to above literature survey it has been observed that major work has been done for steel moment resisting frames. Seismic behavior of the beam column junction RC moment resisting frame is carried out, but study on RCC moment resisting frame for various seismic Zone and for different Seismic parameters is not observed. In the proposed work a RCC Moment resisting frame is analysed and designed using STAAD- Pro for different Seismic parameters and optimum design for all Zone by varying Seismic parameters is done.

III. CONCLUSIONS

Load carrying capacity of u boot beton slab is 20% more than the normal slab without u boot beton as the physical properties of the slab kept constant. Because of u boot beton slab self weight get reduced and automatically size of beam column will be reduced and easily spacing between column will be increase.

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