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U-BOOT VOID SLAB

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Abstract-In present days, enhancing of population taking place day by day and due to excess population, enhancing of traffic is also taking place. The current construction market offers many construction methods and solutions. Some of the methods take into consideration numerous factors including use of less energy and material, less time and construction cost, resistance against earthquake and wind, more accuracy and so forth. During the past years there have been many developments in lightweight construction. In new methods, an attempt is made to use the precast components so as increasing execution speed and decreasing construction time. The voided slab construction refers to modern technologies with favorable features from economic, architectural and structural point of view. The aim of the study is focused on comparison of several variants of lightweight slab solutions from construction cost point of view.

Keywords-*U-Boot,* U-Boot Beton, *etc.*

I.INTRODUCTION-

Voided slab systems are significantly lighter than flat plate concrete slabs while maintaining the ability to have large spans. Slabs are lighter because less concrete is used in voided slab construction than flat plate slab construction. Voided slab systems were first introduced in Europe in the 1990s. Since the 1990s, many European companies have patented their own voided slab systems. As a result, most uses of plastic voided slabs have occurred in Europe. Two plastic voided slab brands, BubbleDeck and Cobiax, have also been utilized in the United States. U-Boot Beton, or U-Boot, is a voided slab system from the Italian company Daliform. U-Boot Beton does not use spherical void formers like previous systems but uses truncated-pyramid shaped void formers instead. These void formers create many "I" shaped beams making up the slab. In terms of construction the U-boot system is similar to the Cobiax system because it is meant to be cast entirely on the site using formwork. After forms are erected, the steel and void formers are placed before the concrete is poured in two lifts. The shape of the U-boot void formers allows them to be efficiently stacked during transportation to the site of construction, saving space and potentially leading to reduced shipping costs compared to spherical former systems, this is an additional design benefits of voided slab systems over all the design systems that use spherical void formers.

II. U-BOOT BETON –

U-Boot Beton is a recycled polypropylene formwork that can be used to create two-way voided slabs and rafts. It is implemented in Italy for the first time. U-boot beton is the simple solution for most problems in laying slabs and laying foundations where the capacity of the layer soil is very low. It can be used as a replacement for raft foundation where slabs were used to distribute the loads to the deeper soils. But we use U-boot betons for transferring loads to deeper soils in U-boot technology. Disposable formwork for two-way 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.

U boot beton is consist of two different types of betons. They are single u-boot beton and double u-boot beton. The single u boot beton is generally used while laying single reinforced slabs where as we use double u-boot beton for laying of double reinforced slabs. Single U boot beton is generally an open type polypropylene box which can be closed by using a closing plate to resist the entry of concrete into the beton. Double U boot beton consists of two boxes which are closed against each other. The width between shuttering and u-boot is called as spacer consist of sharp edges which can be fixed into the lower reinforcement. Spacer

helps u-boot not to move aside when concrete is placed.

III. **PARTS OF U-BOOT-**

U-boot beton is a combination of different parts. Spacer joint is used to join two or more u boot betons while fixing on the shuttering so that there cannot be any change in the distance between gaps of U-boot betons. Closing plate is used to close the u-boot beton box which can resist the flow of concrete into box. The closing plate and its quality plays a major role as it cause problems if concrete tends to move into beton from damaged plate after concrete is placed, the connection bridge is necessary in order join two betons longitudinally wherever the length of the beton needed to be increased.

IV. **SIZE OF U-BOOT-**

The sizes of U-boot beton varies based on the mode of work and based on the load acting on the beton. The general working cross sectional dimensions of the U-boot beton is 53*53cms. The length of the beton can also be increased by connecting them with a connection bridge based on the necessity of the work. The height of the U-boot can vary from 10cms to 56cms based on the mode of slab whether it is singly reinforced or double reinforced. The spacer height which is needed to be placed into the lower reinforcement as explained earlier, is of the uniform measurement of 8cms. The weight of the beton also changes with change in dimensions of the beton.

V.CONCULSIONS-

The U-boot technology is a very advanced, economical, architectural and fastest method of construction 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 natural and renewable resources for our future generators, this technology should be utilized more.

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