Implementation of DAGLOCS Composition in Foundation Work

Shubham Chaudhary[1] Asst. Prof. Manish Kumar Singh[2]
[1,2]Department of Civil Engineering
[1,2]Dr. APJ Abdul Kalam Technical University, Lucknow, India

Abstract — Today in the era of increased rate of construction of concrete structures a lot of the cost is induced in the foundation work. This Composition which is also known as DAGLOCS which is designed to reduce the cost of construction without altering the characteristics properties of the construction of structures. The huge quantity of cement and mortar material requires the huge quantity of cement and motor material requires a lot of amounts of motor material. So in this research paper we will find out the possible ways of reducing the cost of structures construction which will help in using the waste materials which is easily available in the surrounding environment due to the materials which is used by peoples and also by the industries which are producing the useful products and also waste product which is also known as by products which are produced by the industries as a waste material so we can do easily use those material in order to reduce the cost of construction of structural components and also it can help in maintaining the characteristic strength of the concrete mix. DAGLOCS composition also have help the foundation of the structure to bear the weathering and chemical effects which generally occurs in the surrounding environment.

Keywords: Characteristic Mix, Diisodecyl-Phalate, Admixtures, Plasticizer, DAGLOCS

I. INTRODUCTION

The foundation work can be done either in the building work or in the road work construction. In the road work various steps are designed in order to maintain the design of the road construction. This DAGLOCS composition provides proper stability to the road foundation. This composition is used in the road work where concrete pavements are designed which is generally used to design the road pavement for the long-lasting duration. In the building construction the foundations are designed with the use of motor materials in the vast quantity, so if we can use the DAGLOCS composition then we can reduce the vast quantity of cost which are induced in the construction. During the motor preparation the appropriate amount of water is used to maintain the water cement ratio because in this composition two different types of cement are used to maintain the characteristics strength of the concrete mix without altering the natural property of the concrete mix. In this concrete mix firstly, we are using Ordinary Portland Cement and in appropriate ratio we are also using Ground Granulated Blast Furnace Slag which is also known as GGBFS. in this composition with the help of proper water cement ratio this composition is made to establish a proper water cement ratio in order to maintain suitable and good workability because of which it is mixed appropriately which helps in the proper movement of the mortar material from the mixture machine (where the mortar material is mixed properly) to the site of construction where the foundation casting is taking place, since it has good quality of workability because of which it can be placed at the site of the construction in homogeneous state. The water cement ratio in this concrete composition is maintained in such a way that no segregation and any type of bleeding will take place in the concrete mix. The experiments on this concrete composition are done for the M30 and M40 grade of concrete mix. The different adjacent waste materials which are used in this concrete mix are checked on their various marking standards in order to establish a concrete mix which must be of the state-of-the-art concrete mix standards.

II. LITERATURE REVIEW

A. Title of Paper: Implementation of DAGLOCS Composition in the Foundation Work.

Shubham Chaudhary is the author. In this article, we are elaborating the method with the help of which we can implement the DAGLOCS composition for the foundation work, with the help of this study we also justify the proper use of this composition for the various strength testing and obtaining the different experimental values for the study of foundation strength which helps in bearing the load which comes due to the structural construction.

B. Structures Foundation: The implementation of this Composition in Building Structures

During the construction of building structures, the initial process is to layout the foundation of the building structure. This foundation of the building structure is used to bear the whole strength of the building structure which helps to sustain the remarkable bearing strength of the structure. In the foundation work a lot of cost is inducted because foundation work requires a lot of amounts of concrete work because the strength of whole structure depends on the foundation of the structure so no compromise is done with the foundation work.

C. Pavement Foundation: The implementation of this Composition in Concrete Pavement

At the time of road construction especially when the concrete pavement is laid Foundation work is done to provide the stable foundation concrete pavement. The foundation work which is done during the time of road construction requires an economical way to provide the sustainable road foundation construction.

III. PROPOSED METHODOLOGY

The methodology is proposed for this research work to lay out the foundation work for different layers of the concrete payments of the road construction and also for the different layers of the foundation work of the building structures to sustain the bearing strength of the various loads which is applied in the excessive amount. Methodology actually represents how the work is implemented in the different field where it is required with the attenuation with the changing environmental factors.

1) Concrete Pavement: During the road construction various observations are considered, such as the traffic which is observed for considering the total volume of

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traffic which is passed on the roadway. It is designed in such a way no excessive amount of heat is released due to the casting of the concrete composition and also it is casted in such a manner that no irregular cracks are generated during the traffic movement. During the foundation work construction in the concrete pavement the traffic density is also considered because add some point there must be less amount of traffic and some point of the roadway there will be the large amount of traffic.

2) Plinth work: In the plinth work construction of the building structure, we exactly used to observe the construction of the foundation work. In this construction the load is varied along the building structure, such as at some point there must be a large amount of load is applied because that point absorbs the large strength of the building and at some point, there must be the small amount of load because it resist the small portion of the building. In the foundation work heat of hydration is also considered during the casting of the concrete because various chemical reactions are undertaking during the mix of cement, aggregate and different admixtures and plasticizers.
3) Bridge Pile Casting: At the time of bridge construction when we actually observe the construction of the bridge pile then we can say that the large amount of concrete is used during the bridge foundation work. we can easily deduct the vast amount of cost of construction with the help of suitable use of appropriate waste materials which is used in the concrete composition in the required amount to fulfill the need of the concrete composition. These different materials which is used in this composition is also have good and exemplary characteristic property like the alternative different concrete composition materials. With the help of these alternative materials no any alternative change is seen in the building structure, and also it shows the good characteristic strength of the mix. the Bridge pile construction absorbs the vast amount of load because Bridge contains its dead load because of the heavy concrete work and the of steel reinforcement and the live load due to the movement of the huge amount of traffic with the inclusive of heavy weight vehicles.

IV. Experimental Results & Analysis

The different experimental studies focus on the implementation of the DAGLOCS composition in the foundation work for the viable and economical construction of the concrete foundation. We are implementing the various different constituent materials of this composition within a specified grain size and shape of the different composition materials. It is accorded in such a manner that no inadequate chemical reaction will take place during the motor mixing and during the casting of the concrete material in the structure.

After the different experiments and observations on the concrete compound, it is seen that M30 and M40 grade of concrete is considered to be more suitable for the concrete casting. These both grade of concrete shows the appropriate amount of characteristic strength of the concrete.

The experimental studies show that these M30 and M40 grades of concrete will reduce the weathering reactions which happen due to the changing climatic actions. It actually impacts the reaction between the Ground Granulated Blast Furnace Slag and Ordinary Portland Cement.

V. Conclusion

We can conclude from this study that the different study conducted in this research work show that the M30 and M40 grade of the concrete is appropriate for the foundation work implementation in the building structure and also for the road pavement. This experimental study also recommends that with the use of waste material in the concrete composition we can easily and economically reduce the waste material which is generated in the surrounding environment of ours. This use of waste material is cost effective solution for making the viable and economical method of the concrete casting. The minimum deformation in the foundation structure and high impact value of the coarse aggregate and steel scrap fibre which is induced in this concrete composition helps to resist the different weathering and strength factor induced in the concrete composition.

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