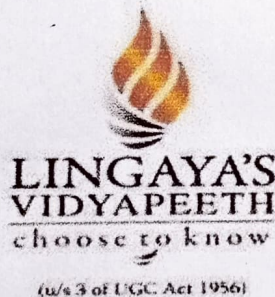


**ON EFFECT OF SIZE OF AGGREGATE ON SELF
COMPACTING CONCRETE OF M70 GRADE.**

**A Major Project Report Submitted
In Partial Fulfilment of the requirement
for the award of the degree of
Bachelor of Technology
In
Civil Engineering**

**By
PRAKSHAM NAGAR
18CE51L**

**Under the Supervision of
Zeeshan Khan
Asst.Professor**



Department of Civil Engineering

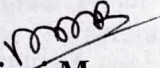
**Lingaya's Vidyapeeth
Faridabad (Haryana)
Session 2018-2022**

Certificate

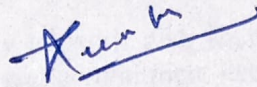
This is to certify that the project report entitled "On Effect of size of Aggregate on Self Compacting Concrete of M70 Grade".

Being submitted by PRAKSHAM NAGAR 18CE51L for the partial fulfillment of the award of the degree of **BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING** by Lingaya's Vidyapeeth, Faridabad is a record of a Bonafede work carried out by them under my supervision during the year 2022.

The contents of this report have not been submitted to any other University or institute for award of any degree or diploma.



Dr Maniraj M.
(Associate Dean)
Department of Civil Engineering
Lingaya's Vidyapeeth
Faridabad



Zeeshan Khan
Asst Professor
Department of Civil Engineering
Lingaya's Vidyapeeth
Faridabad

DECLARATION

I **PRAKSHAM NAGAR (18CE51L)** the student of Bachelor of Technology in Mechanical and Automobile Engineering during session 2018-2022 at Lingaya's Vidyapeeth, Faridabad, Haryana, hereby declare that the work presented in this report entitled "**On Effect of size of Aggregate on Self Compacting Concrete**" is the outcome of our own Bonafede work and is correct to the best of my knowledge and this work has been undertaken taking care of Engineering Ethics.

It contains no material previously published without referring or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Submitted by:
Praksham Nagar
18CE51L

ACKNOWLEDGMENTS

I would like to thank my guide, **Zeeshan Khan** for his very valuable guidance, his support and his critical suggestions throughout the completion of our project.

It was a privilege to study under his supervision. His vision and broad knowledge played an important role in the project work. I also like to thank him for pushing me to the stage that I thought I could never accomplish.

Allow me to express my sincere gratitude to **Dr. Maniraj M**, for his tremendous and selfless support in design of the project and time management skills while fabricating the product.

It is my great honor to have had the opportunity to work with these great minds and their remarkable characters. Their spirit of enthusiasm and commitment even in the times when we students found it hard to do is commendable.

Submitted by:
Praksham Nagar
18CE51L

Abstract

Concrete is a versatile widely used construction material. Ever since concrete has been accepted as a material for construction, researchers have been trying to improve its quality and enhance its performance. Recent changes in construction industry demand improved durability of structures. There is a methodological shift in the concrete design from a strength based concept to a performance based design. At present there is a large emphasis on performance aspect of concrete. One such thought has lead to the development of Self Compacting Concrete (SCC). It is considered as "the most revolutionary development in concrete construction". SCC is a new kind of High Performance Concrete (HPC) with excellent deformability and segregation resistance. It can flow through and fill the gaps of reinforcement and corners of moulds without any need for vibration and compaction during the placing process.

The guiding principle behind self-compaction is that "the sedimentation velocity of a particle is inversely proportional to the viscosity of the floating medium in which the particle exists". The other features of mix proportion of SCC include low water to cementitious material ratio, high volume of powder, high paste to aggregate ratio and less amount of coarse aggregate. One of the popularly employed techniques to produce Self Compacting Concrete is to use fine materials like Fly Ash, GGBFS etc; in concrete, besides cement, the idea being to increase powder content or fines in concrete.

The original contribution in the field of SCC is attributed to the pioneering work of Nan Su et al; who have developed a simple mix design methodology for Self Compacting Concrete. In this method, the amount of aggregate required is determined first, based on Packing Factor (PF). This will ensure that the concrete obtained has good flowability, self compacting ability and other desired SCC properties. The European Federation of Producers and Applicators of Specialist Products for Structures (EFNARC) [2005] have also laid down certain guidelines for fresh properties of SCC.

The present investigation is aimed at developing high strength Self Compacting Concrete of M70 Grade. The parameters of study include grade of concrete and effect of size of aggregate. The existing Nan Su [2001] method of mix design was based on packing factor for a particular grade of concrete, obtained on the basis of experimental investigation. SCC characteristics such as flowability, passing ability and segregation resistance have been verified using slump flow, L box and V funnel tests.