



Self Compact Concrete

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ABSTRACT:-

This is a summary of Self-compacting concrete ,definition ,application & other information about Self-compacting concrete (SCC) . Self-compacting concrete (SCC) is a type of concrete that can flow and compact itself into the desired shape without the need for vibration.

Application:-In Construction, Retrofitting and repairing constructions, Drilled shafts, Columns

The porous of this content to understand the SCC in brief.

INTRODUCTION:-

Self-Compacting Concrete (SCC) is defined as concrete that has an ability to flow under its own weight, to fill the required space or formwork completely and to produce a dense and adequately homogenous material without a need for vibrating compaction,

The topics also include about the material of SCC:-

Self-Compacting Concrete Materials Portland Cement: Common Portland cement grade 43 or 53 is commonly used. Aggregates: The size of coarse aggregate is limited to 20 mm, but in the case of having a structure with congested reinforcement, the aggregate size can range between 10 to 12 mm.

RESEARCH BACKGROUND:-

This file is all about the brief introduction of Self-compacting concrete, Material description where & what kind of material will used in any specific application.

The topic has been covered including the definition, material, building & foundation description, type of concrete.

It will also include project planning in brief & surveying.

Self-compacting concrete, also known as self leveling concrete, high fluidity concrete, refers to the mixture with a high liquidity and in pouring process without segregation and bleeding, can not by vibration and full of concrete form and wrapped reinforced concrete.

DEFINATION:-

Self-compacting concrete (SCC) is a type of concrete that can flow and fill a space on its own without the need for vibration. It's also known as self-leveling concrete, self-consolidating concrete, or self-placing concrete.

APPLICATION:-

It has many applications

1. **High-rise buildings:** SCC can fill complex formwork and ensure that the structure is completely filled.
2. **Bridges and tunnels:** SCC can create smooth, dense surfaces and adhere tightly to the structure.
3. **Architectural concrete:** SCC can create intricate shapes and designs.
4. **Earth retaining systems:** SCC can be used to build earth retention walls.

5. Drilled shafts: **SCC can be used in drilled shafts and column construction.**
6. Retrofitting and repairs: **SCC can be used for retrofitting and repairing constructions.**
7. Strengthening projects: **SCC can be used in strengthening projects.**
8. **SCC has several advantages over conventional concrete, including:**
9. No vibration: **SCC eliminates the need for vibration equipment, which can reduce noise pollution and exposure to vibration for workers.**
10. Decreased construction time: **SCC can reduce construction time and labor costs.**
11. Improved durability: **SCC can decrease permeability and improve durability.**

MATERIAL DESCRIPTION:-

These classes of concretes are obtained by using a low water-cementations materials ratio (w/cm), incorporating high quantities of supplementary materials (cement and mineral admixtures, such as ground-granulated blast furnace slag, fly ash and limestone powder) and super plasticizer, increasing sand-aggregate ratio.

SURVEYING:-

Here are some things to consider when surveying for self-compacting concrete (SCC) in India:

Workability

The slump cone test is a common way to measure the workability of SCC. The test involves filling a slump cone with concrete, removing excess concrete, and then measuring the diameter of the concrete that flows out. The higher the slump flow value, the better the concrete's ability to fill formwork.

Passing ability

This is the ability of the concrete to flow through narrow spaces without losing uniformity or causing blocking. It depends on the geometry and density of the reinforcement, as well as the flow ability and maximum aggregate size.

Segregation resistance

SCC needs to be homogeneous and high quality, and segregation can occur during and after placing. Segregation can lead to surface defects like cracking.

Water availability

In India, water availability is a problem on many construction sites. Self-curing concrete (SCu) can help distribute moisture evenly inside the concrete.

Construction cost

SCC is more expensive to construct than conventional concrete.

Waste utilization

India has many waste materials like marble powder and seethe that could be used in SCC.

Conclusion

Self-Compacting Concrete (SCC) has proven to be a highly innovative and effective material in modern construction, offering several advantages over conventional concrete. Its ability to flow under its own weight and fill intricate molds or complex structures without the need for mechanical vibration makes it particularly suited for applications where high-quality finishes and complex shapes are required.

References:-

Book :-Self-Compacting Concrete: Materials, Properties and Applications by Rafat Siddique.