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# Light Transmitting Concrete

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***Abstract:*** ***Transparent concrete, also known as translucent or light-transmitting concrete, is a new material that allows to go to light due to embedded glass rods or optical fiber. It is pale and offers benefits as less density, low thermal conductivity and rapid construction rate than traditional concrete. The purpose of this study is to design a transparent concrete blocks using glass rods and optical fibers, analyzing their narrow strength and density on different fiber percentage (1%, 1.3%, 1.9%and 1.9%) in sand-cement mixture. The goal is to evaluate the physical properties of these modified blocks compared to the standard concrete***

## I. INTRODUCTION

Concrete is a construction material that is cement (usually Portland cement), as well as fly s slag cement, in total (usually coarse such as rave limestone or granite, as well as sand and chemical admix The chemical process known as hydration makes the concrete strong and rigid after mixing with water. Concrete is used more than other man -made materials in the world. By 2006, about 7 cubic kg of concrete is made more than one cubic meter per year for each person on earth. Thomas ison Disconne patented Portland cement in 1909. Since then it has been used for different use. Pavilions, buildings, sinks and furniture are some of the products made in the form of concrete from cement. Cement is dry powder when other III detections and water are made of concrete. In the last decade, new types of concrete and cement have been created that allow the plant to grow and light from the bend

## II. EXPERIMENTAL PROGRAM

### A. *MIX Design Material for 1 x1.5 M Cube*

| Material | Quantity ($Kg/m^3$) |
|---|---|
| Cement | 1 |
| Sand | 1.5 |
| W/c ratio | 0.45 |
| Water content | 0.665 |

### B. *Mixed Design Proportions for Rubberized Concret*

This work is 9 Standard cubic specimen of 15 cm size (3 sample for each percentage of crumb rubber) Which is casted for compressive strength of cubes for 7, 14, 28 days of curing. The crumb rubber is partially (5%,7%,9%) replace with fine aggregate.

## III. RESULTS

### A. *Compressive strength of normal concrete cube*

| Curing days | Strength after curing (N/mm2) |
|---|---|
| 28 | 20.5 |

### B. *Compressive Strength of M20 Concrete with 0.75-Micron Optical Fiber Addition*

| Curing days | Strength after curing (N/mm2) |
|---|---|
| 28 | 23.4 |

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## IV. CONCLUSION

From experimental results, it is clear that the connection of 0.75 -micron optical fiber in M -20 grade concrete has a positive effect on its narrow strength.

*1)* Averaged 28-day compressive power of normal M20 concrete was recorded as 20.5 n/mm, which aligns the expected characteristic power for this grade.

*2)* When the 8.7575-micron optical fiber was added, the compressed power of the 3 Day days increased to 1.4..4 n/mm, which indicates approximately 5.1.5% improvement than the control mixture.

The attribute of this enhancement in the power can be given to the ability of the fiber to control micro -cracking transmissions and improves the internal bond between the concrete matrix. Therefore, a small percentage of optical fibers can be an effective way to improve the mechanical performance of concrete without compromising its efficiency or mix design

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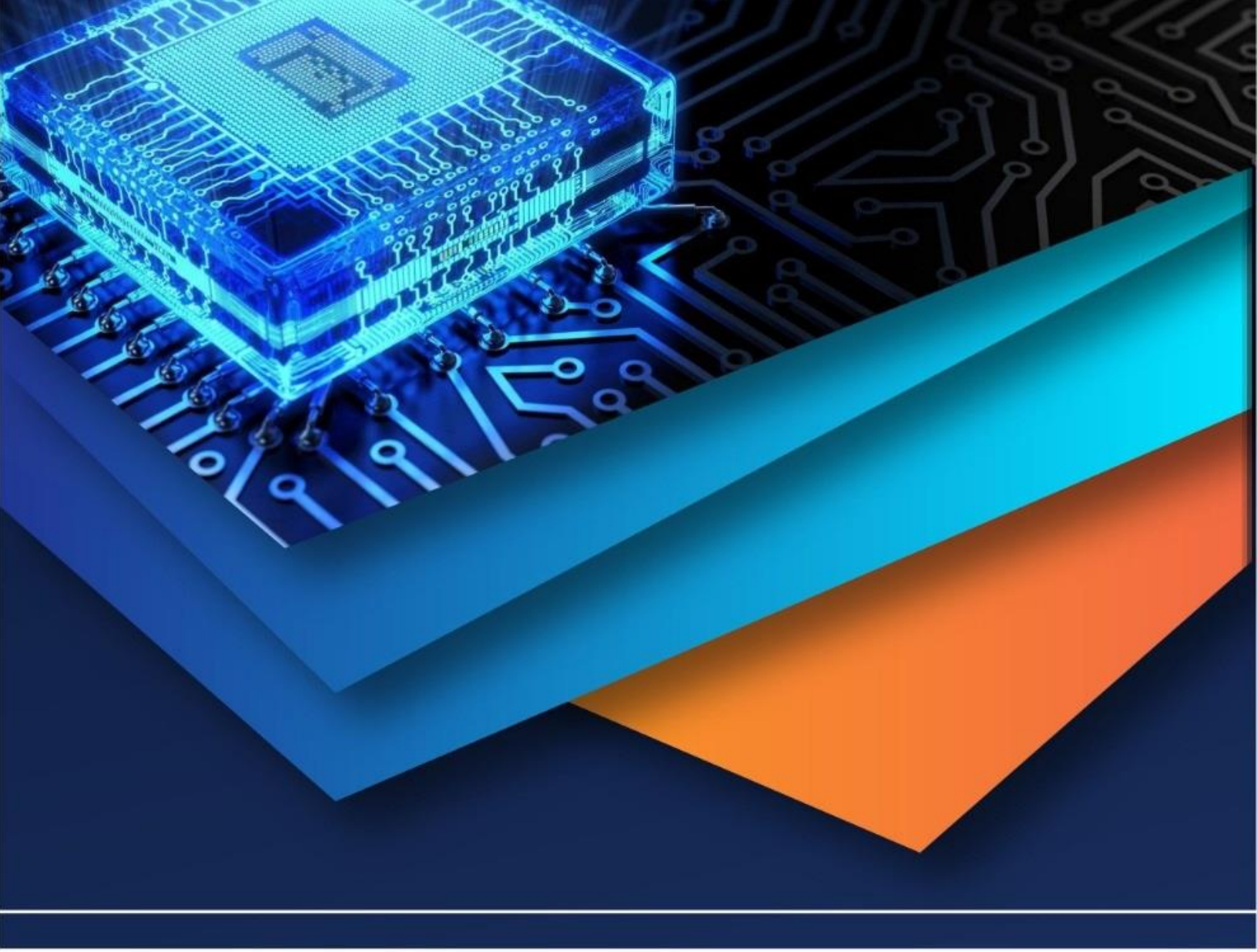
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