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Study of Light Transmitting Concrete

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Abstract- This paper investigates the performance of light transmitting concrete (LTC). Light transmitting concrete is also known as translucent concrete. Translucent concrete is a new technique different from normal concrete. Use of sunlight as source of light instead of using electrical energy is main purpose of LTC, it result to minimize power consumption to decrease use of artificial light and LTC can provide high light transmitting ratio. Thus, the use of translucent concrete as an architectural purpose for good aesthetical view of building.

Keywords- Light transmitting concrete, translucent concrete, Power consumption

I. INTRODUCTION

Today we are living in world where energy outgoings and environmental problems are increasing rapidly to the entire world. The increase in the rate of development and modernization in the construction sector has large enough to be noticed in past few years. Part of the industry's advancement is the addition of optical fibres in concrete to make the translucent concrete (transparent concrete).

Aron Losonczi, the Hungarian Architect, was the first person who bring light on light transmitting concrete in 2001 and then he succussed in his research in 2003 by producing the first transparent block which in known as LiTraCon. From this, he found that translucent concrete gives high compressive strength and weak in tension and flexure.

Translucent concrete is a concrete based building material have light transitive property. It is being used to create environmental friendly and dazzling bright building material. The main fundamental or motive of light transmitting concrete block is reserve energy using natural light and creating it as a green building material.

The new technology of Light transmitting concrete put up to diminished the negative profile of concrete as being a grey, dark, harsh, rigid and non-transparent material

In the present time, the rate of production of optical fibre is less, thus its cost is high in the current market. However, as the production cost of optical fibre will be minimized in the future coming years, the LTC would be more economical.

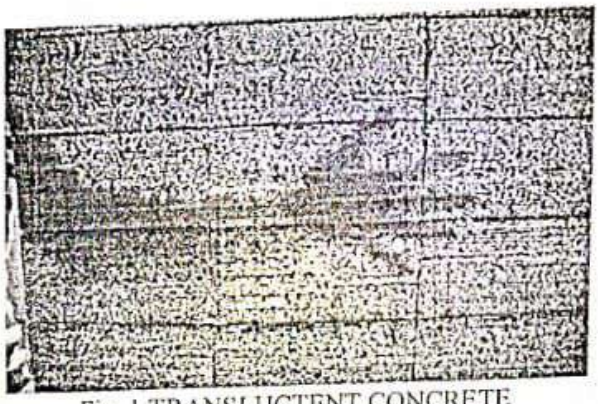

Fig. 1 TRANSLUCTENT CONCRETE

II. CONCEPT OF LTC

The performance of LTC permit the transmission of light through the concrete block, known as litracon is made of 96% of concrete and 4% by weight of optical fibre. LTC is mainly used for various range of implementation, including Interior wall, partition wall, furniture, elevation, stairs and floors. Fine concrete and LTC material are two basic materials, which is used to manufacture translucent concrete.

The plastic optical fibres (POF) engross 2% to 6% of the concrete volume in light transmitting concrete. The advantage of POF is greater ductility for a inharmonious environment. The optical fibbers receive multiple inner reflections up to the ray of light become visible from other end of fibre

III. OBJECTIVE

In recent past concrete was examined as structural member only, but the idea of concrete has changed today. Decorative materials in building have come up with many innovative and smart building materials like litracon. Concrete with light transmitting property, provides delightful appearance to concrete and it also increase strength

The use of optical fiber in the concrete makes it partially transparent and The optical fiber upgrade in the