

## LITRACON: Light Transmitting Concrete

**RAKESH GANVIR**

BE CIVIL ENGG. DEPT.

T.G.P.C.E.T. NGP.

[ganvirrakesh@gmail.com](mailto:ganvirrakesh@gmail.com)

9096091383

**ATUL KHOBRAGADE**

BE CIVIL ENGG. DEPT

T.G.P.C.E.T. NGP.

[atulkho95@gmail.com](mailto:atulkho95@gmail.com)

9545333312

**KETAN KARHADE**

BE CIVIL ENGG. DEPT

T.G.P.C.E.T. NGP.

[karhadeketan@gmail.com](mailto:karhadeketan@gmail.com)

9637735388

**AJINKYA BODE**

BE CIVIL ENGG. DEPT

T.G.P.C.E.T. NGP.

[ajinkyabode007@gmail.com](mailto:ajinkyabode007@gmail.com)

90496666621

**Abstract-**In this paper, a smart transparent concrete - novel construction material was manufactured with POF and FBG by drilling through the cement and mortar in order to utilize the light guiding ability of POF and the sensing properties of FBG, respectively. The main purpose was to use sunlight as a light source in order to reduce the power consumption of illumination. Meanwhile, the steady sensing offered by FBG allows detection of potential internal deformation of the concrete. Additionally, experiments to study the mechanical performance of the concrete infused with POF were carried out.

### I. INTRODUCTION

The term “translucent concrete” has the potential to be somewhat misleading. The concrete itself is not translucent, nor is it any different to conventional concrete. Concrete is one component of a revolutionary new material marketed as “translucent concrete”. This product also contains glass fibre optics which has the capacity to communicate light frequencies. Perhaps a more suitable term could be “light transmitting concrete”. It is important to differentiate, as past attempts have been made to create an actual translucent concrete, however such attempts have generally proven unsuccessful as the product becomes fragile, and incapable of withstanding wind and rain.

### II. NEEDS & ADVANTAGES

#### **Illuminate Your Walls**

Galaxy Translucent Concrete can be used as building material for interior and exterior walls. If sunshine illuminates the wall structure, then eastern or western placement is recommended; the rays of the rising or setting sun will hit the optical glass fibers in a lower angle and the intensity of the light will be bigger. Besides the traditional applications of a wall, the light transmitting concrete can also be used as wall covering illuminated from the back..

#### **Watch Your Pavement Shine at Sunset**

This product can be used as flooring – a passable surface illuminated from below. During the day it looks like typical concrete pavement but at sunset the paving blocks begin to shine – and in different colours.

#### **Get Creative with Design**

The building units are versatile and can be used in many areas of design. Two successful designs using the light transmitting concrete were a jewel and a concrete bench. You can also create a logo with colorful figures, inscriptions, and pictures.

#### **Artsy Reception Desk**

If you really want to create a look that stands out you should opt for this artsy and vogue reception desk those lights up in the front and the sides.

#### **A Lighting fixture and Conversational Piece**

The Galaxy Cube is, without a doubt, a great conversation piece. Impact Lighting Inc. has built

many custom cubes for commercial and residential projects and delivered them all over the world. The new cube line consists of four identical pieces of concrete and, due to its special geometry, the pieces form a stable structure without fixing them together.

### III. MATERIALS

#### Cement:

Cement which we have used is Portland pozzolona cement which we have purchased from a hardware shop which is located at the seminary hills TV tower Nagpur.

#### Optic fibers

Optical fibre the light transmitting element of our project is to be purchased from the gift shop and they don't know about it in technical language that's why we demand as a "jhadu" then they have given to us

#### Sand

Sand which we have used in our project as a mortar material is purchased from the "building material shop" which is located near seminary hills and the origin of this sand is Waingangā River

#### Water

The water which we have used in the project which have a crucial role in the project is domestic water.

Steps Involved:

- [Step 1- Making The Mould](#)
- [Step 2 - Fiber optics](#)
- [Step 3 - Placing The Fibers](#)
- [Step 4 - Pouring The Concrete](#)

- [Step 5 - Breaking The Mold](#)
- [Step 6 - Trim The Fibers](#)
- [Step 8 - Polishing](#)



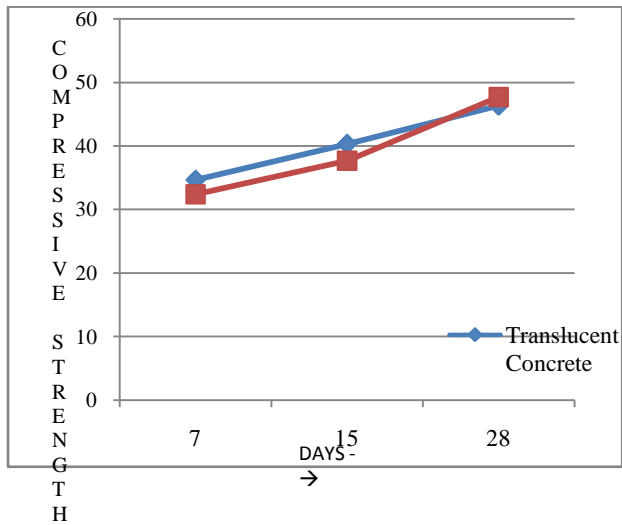
*Fig.1 fiber optics*



Fig 2 litracon model

### IV. RESULTS AND DISCUSSIONS

#### I. . Comparison between Translucent Concrete & Plain Concrete



## VI. CONCLUSION

The use of translucent elements has created a huge opportunity to use precast concrete panels that transmit light to the interior of buildings and precast companies are now developing other solutions for other projects.

In this project the use of architectural precast concrete components with translucent capacity has transformed the buildings appearance, making the interior areas feel light .

It is a clear example of technology transformed into art, creating an ecologically solution that reduces to minimal the energy consumption of this project.

## REFERENCE

- [1] Design And Manufacture Of Translucent Architectural Precast Panels By, Alejandro Fastag
- [2] Translucent Concrete By, Michael & Alysha
- [3] Transmaterial By ,Blaine Brownell
- [4] [Http://Www.Litracon.Hu](http://Www.Litracon.Hu) .
- [5] [Http://Www.Danubiusmagazin.Hu/Magazin/Tortenelem/Uvegbeton\\_E.Html](http://Www.Danubiusmagazin.Hu/Magazin/Tortenelem/Uvegbeton_E.Html)