

## Application of Transparent Concrete in the interior design of smart houses

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### Abstract:

Just a few decades ago, concrete was often misunderstood, and captured by its image fixed due to the rapid urbanization of the 1960s. However, since that time, scientists have made considerable progress on concrete, not only in technical terms, but also in aesthetic terms. It is no longer the heavy, cold and grey material of the past; it has become beautiful, colored, more resistant and lively.

In 2001, the architect Aron Losonzi first put the concept of transparent concrete forward, and the first transparent concrete block successfully produced by mixing large amount of glass fiber into concrete in 2003, which can allow 80% light through and only 30% of weight of common concrete. While the transparent concrete mainly focuses on transparency and its objective of application pertains to green technology and artistic finish. Lower energy is commonly associated with buildings whose forms are directly determined from local climatic conditions while those buildings with sophisticated and complex systems are routinely seen as energy hogs, Smart materials are presumed to be direct and discrete substitutes to deliver the elusive solution to the intractable problem of ever increasing energy use by building systems. This research will highlight the transparent concrete development, and using it in the smart houses interior design, rather than restricting their use to external architecture, to enhance the functional, technical, environmental and aesthetic side as well; it will discuss the relationship between the environment and this new material.

**Keywords:** Transparent Concrete – Optical Fiber – Smart materials – Interior design – Smart house – Energy – Environment – Eco-friendly – Decorative elements – Light transmission.

### Statement of the problem:

- 1- Consuming huge amounts of energy in houses because of using traditional materials instead of using smart alternative materials.
- 2- The need to use materials with an increasing range of applications to solve energy problems, provide an opportunity for new wealth creating products and investigate the important role in interior design sustainability.

### The research objective:

- 1- Focusing on transparent concrete as a smart material that combines the characteristics between flexibility, form and function in terms of practical and environmental, and not only using it as an architectural material but also using it in smart homes interior design.
- 2- Linking the use of smart materials and the possibility of energy conversion for introducing better interior design to modern homes that makes them more convenient and comfortable and energy saving.
- 3- Using a special type of concrete with light transmitting properties, to study its characteristics and to develop a functioning material which is not only energy saving but gives out artistic finish.