

# Temperature Increases in Atmosphere Due to Heat Emission from Concrete Structures

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## **ABSTRACT:**

*In India already temperature is very high as compare with other countries. But due heavy construction in India temperature are increases day by day. Temperature in India is in between 5<sup>0</sup>C to 48<sup>0</sup>C. Now in recent time India runs very high super structure infrastructure development by Indian government. Also due to high economical condition of peoples the construction of concrete houses are increased very largely in rural as well as urban areas. In metro cities high rise buildings are constructed speedily by demands. So heat is generated by heated concrete building structure by sunrays.*

**Keywords:** Environment, Concrete Structure, Heat Emission, Comfort living

## **I. INTRODUCTION:**

### **1. Environmental impact of concrete:**

The environmental impact of concrete, its manufacture, and its applications, are complex, driven in part by direct impacts of construction and infrastructure, as well as by CO<sub>2</sub> emissions; between 4-8% of total global CO<sub>2</sub> emissions come from concrete. Many depend on circumstances. A major component is cement, which has its own environmental and social impacts and contributes largely to those of concrete.

The concrete components are the main producers of carbon dioxide, a potent greenhouse gas. Concrete causes damage to the most fertile layer of the earth, the topsoil. Concrete is used to create hard surfaces which contribute to surface runoff that may cause soil erosion, water pollution and flooding. Conversely, concrete is one of the most powerful tools for proper flood control, by means of damming, diversion, and deflection of flood waters, mud flows, and the like. Light-colored concrete can reduce the urban heat island effect, due to its higher albedo. However, original vegetation results in even greater benefit. Concrete dust released by building demolition and natural disasters can be a major source of dangerous air pollution. The presence of some substances in concrete, including useful and unwanted additives, can cause health concerns due to toxicity and (usually naturally occurring) radioactivity.<sup>[4]</sup> Wet concrete is highly alkaline and should always be handled with proper protective equipment. Concrete recycling is increasing in response to improved environmental awareness, legislation, and economic considerations. Conversely, the use of concrete mitigates the use of alternative building materials such as wood, which is a natural form of carbon sequestering.

### **2. The Production Process of Concrete:**

Concrete is constructed using cement mixed with an aggregate-- a grainy blend of materials such as stone and sand. After mixing, the concrete is poured into a mold and left to harden then use in building. The aggregates are sourced from a local body of water and crushed in a natural procedure. That process releases nearly no carbon emission, the cement is the true problem when it comes to carbon footprint. The cement process is sole reason why the concrete industry makes up 8% of overall global emissions and 12% of emissions in India.

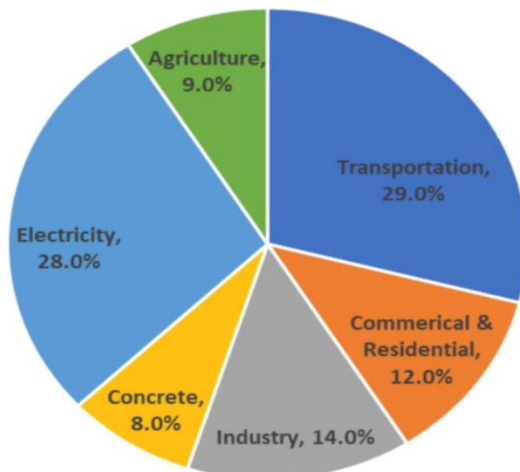


Chart: Global Emission

Cement is made by firing limestone, clay, and other materials in a kiln. CO<sub>2</sub> is emitted from the energy used to fire the material, and the chemical reaction produced from the mixture when it is exposed to heat. According to the National Ready Mixed Concrete Association, each pound of concrete releases 0.93 pounds of carbon dioxide. Since concrete is such a widespread item, the amount of CO<sub>2</sub> released in the industry continues to grow.

### 3. Concrete and the environment:

Generally concrete is seen as a versatile material being absolutely necessary for a society to develop its infrastructure and housing and in order to prosper. Concrete is mainly based on natural resources readily available in all corners of the globe in huge amounts, i.e. a very local building material. It is generally considered to be a sustainable material due to its good inherent properties such as strength, fire protection, earthquake proof and fully recyclable. However, concrete production is also associated with environmental impacts that make it necessary to adopt certain awareness when producing it and using it in structures.

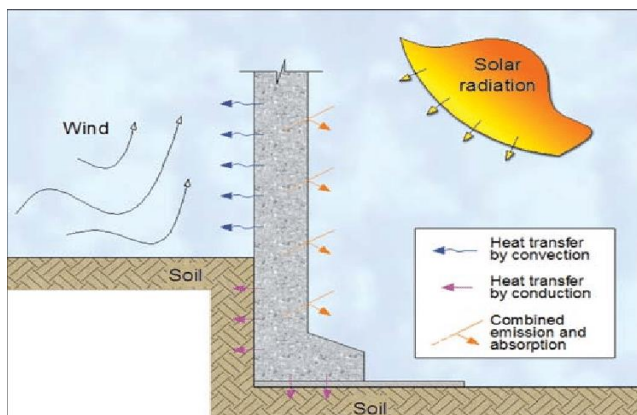


Figure: Solar Radiation

## II. METHODOLOGY

In order to carry out an effective solution, the following results were highlighted, which includes. Heat is emitted more in concrete structures than non concrete structure houses. We have to analyze the process how the atmosphere is increases in concrete structures.

**Observation chart:**

<b>Observations In Summer Time</b>	<b>Atmosphere Temperature</b>	<b>Concrete Structure Building</b>	<b>Non-concrete Building</b>	<b>Difference in Atmosphere Temperature</b>
Summer	43 <sup>0</sup> C	44 <sup>0</sup> C	38 <sup>0</sup> C	6 <sup>0</sup> C
Summer	43 <sup>0</sup> C	45 <sup>0</sup> C	37 <sup>0</sup> C	7 <sup>0</sup> C
Summer	43 <sup>0</sup> C	44 <sup>0</sup> C	32 <sup>0</sup> C	12 <sup>0</sup> C

**III. RESULTS AND DISCUSSION**

After the observation it is seen that the emission of temperature in concrete structure are more than non-concrete building structures.

**IV. CONCLUSIONS:**

1. Overall emission is more than non concrete building structures.
2. In future to maintain environmental balance to minimize concrete material for the construction of houses & replace the non emitted construction material.

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