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Analysis of Carbon Footprint-Comparison Study between R.C.C and Green Building

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Abstract: ***The term carbon footprint‘ has become tremendously popular over the last few years and is now in widespread use across the media. With climate change high up on the political and corporate agenda, carbon footprint calculations are in strong demand. Numerous approaches have been proposed to provide estimates, ranging from basic online calculators to sophisticated life-cycle analysis or input-output-based methods and tools. Despite its ubiquitous use however, there is an apparent lack of academic definitions of what exactly a _carbon footprint‘ is meant to be. Though in India this carbon footprint has not been adopted properly yet our group has taken effort and has taken this project —Carbon Footprint‖ which will be very useful for future awareness in India mainly. Before going to calculative part we must know the various sources of carbon emission. So basically there are two sources of carbon emission : Direct source and Indirect source and by analyzing these sources properly and knowing the values of various materials one can easily do the calculative part in terms of CO2 equivalent. This project is mainly divided into two stages: Preliminary stage (in which we are going to prepare a checklist of green materials , reconnaissance survey will take place, methodology will be properly defined) and secondary stage (which mainly consists of calculation part by root method). Then we are gonna develop our own method with the help of other available methods and then comparative studies will take place between different methods.***

Keywords: Carbon footprint, Load Carriers, Recycle plastic, Pollution control

I. INTRODUCTION

Carbon footprint‘ has become a widely used term and concept in the public debate on responsibility and abatement action against the threat of global climate change. It had a tremendous increase in public appearance over the last few months and years and is now a buzzword widely used across the media, the government and in the business world. But what exactly is a carbon footprint‘? Despite its ubiquitous appearance there seems to be no clear definition of this term and there is still some confusion what it actually means and measures and what unit is to be used .So basically carbon footprint is the amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community. While this term itself is rooted in the language of Ecological Foot printing (Wackernagel 1996), the common baseline is that the carbon footprint stands for a certain amount of gaseous emissions that are relevant to climate change and associated with human production or consumption activities. But this is almost where the commonality ends. There is no consensus on how to measure or quantify carbon footprint. This paper will clarify somme of the doubts regarding on how to measure carbon footprint.

II. LITERATURE SURVEY

A. Title

ISO 14067 Draft International Standard “Requirement and guidelines for quantification and communication” ICS 13.020.40.

1) *Abstract:* This International Standard specifies principles, requirements and guidelines for the quantification and communication of the carbon footprint of a product (CFP), based on 12 International Standards on life cycle6 assessment (ISO 14040 series) and on environmental claims, labels and declarations. This paper also tells us about principles for CFP(Carbon footprint) communication and methodology for CFP quantification , goal and scope of the CFP quantification.

B. Title “Enabling Low Carbon Communities.

1) *Author:* Christpoher M Jones |UC Berkeley
2) *Abstract:* This paper tells us how human activities results in the release of greenhouse gases to the atmosphere which includes transportation, food, goods and services. Everything we do results in the release of enormous percent of carbon into the atmosphere and why we should adopt low carbon technologies and practices. This paper also point out the climate crisis taking place around the world due to release of carbon into atmosphere.This paper has also laid emphasis on the local climate action planning

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C. Title

A Definition of 'Carbon Footprint'.

1) *Author:* Wiedmann,T | Minx J
2) *Abstract:* This paper has tremendously helps in understanding the word carbon footprint in terms of its definition its popularity and its ubiquitous use. This paper also tells us about the methodological issues in calculating carbon footprint. This paper has also highlighted two practical examples on carbon footprint analysis (Ist e.g. UK Schools carbon footprint scoping Study, 2nd e.g. Calculation of carbon footprint of UK households) . This paper also tells us about the method of choice adopted will depend on the purpose of enquiry and availability of data and resources

III. METHODOLOGY

A. Overview

Since we have to calculate the carbon footprint of a green building that means we have to consider all the carbon emission that will take place right from manufacturing upto disposal . Before starting off with methodology let‘s see an overview of this method. Suppose we have a concrete block which is composed of cement, fine aggregates, course aggregates (neglecting water). Let us assume that out of these, per kg cement has a carbon emission of **—X‖** tonnes so that means if we have 50kgs of cement our carbon emission will be (50 × X) tonnes equivalent to (tCO2e). Similarity we will do this for aggregates as well . So, by adding up the carbon emitted by cement and aggregates we will get the total carbon emitted by that concrete block .So this example of calculating carbon footprint was on a small scale . Now let us see the steps that will brief on about how we are going to calculate carbon footprint of a green building.

B. Steps

Find source of emission at different stages (Transportation Stage , Construction Stage , Disposal Stage)

1) *Source of Emission During Transportation Stage:* Truck , Load carriers , Material itself , person driving that truck Amount of carbon emitted also depends weather that vehicle is at rest or moving.That means moving vehicle can emit more carbon and vehicle in rest will emit less carbon .so we will also consider that how many times that vehicle had stop during travelling to be more precise.
2) *Source Of Emission During Construction Stage:* This stage will be crucial as more than 70% calculation part relies on this stage.
3) *Sources At This Stage Will Be Green Materials Such As:* Wool brick , Lime , Mycelium , Recyclable or sustainable concrete , Bamboo, solar tiles , paper insulation , Triple glazed window , Grasscrete , Recycled Plastic , Wood , Timbercrete etc. 14 Though these materials are considered as green materials still there will be some carbon emission which will be less as compared to R.C.C. building materials .
4) *Source Of Emission During Disposal Stage:* Incineration process, Filling Process Then analysis of CO2 emission in transportation stage , construction stage and disposal stage will be done. Combine all the data evolved in these stages and simply will be get the carbon footprint of that green building in terms of tonnes equivalent (tCO2e)

IV. PROPOSED WORK

Proposed system has been in different aspects of development in various projects. Calculation of carbon footprint of buildings in various cities in America has shown great results . The method mentioned in this paper has different approach in estimating and calculating the carbon emission. The small emission sources that has been neglected during the calculation has been considered in this paper .

A. Advantages

1) Harm to environment will be reduced.
2) Pollution near the surrounding environment will be in control.
3) Widely applicable to activities

B. Disadvantages

1) Long and tedious calculations are involved sometime.
2) Accurate values are almost hard to get.
3) Based on some hypothetical assumptions.

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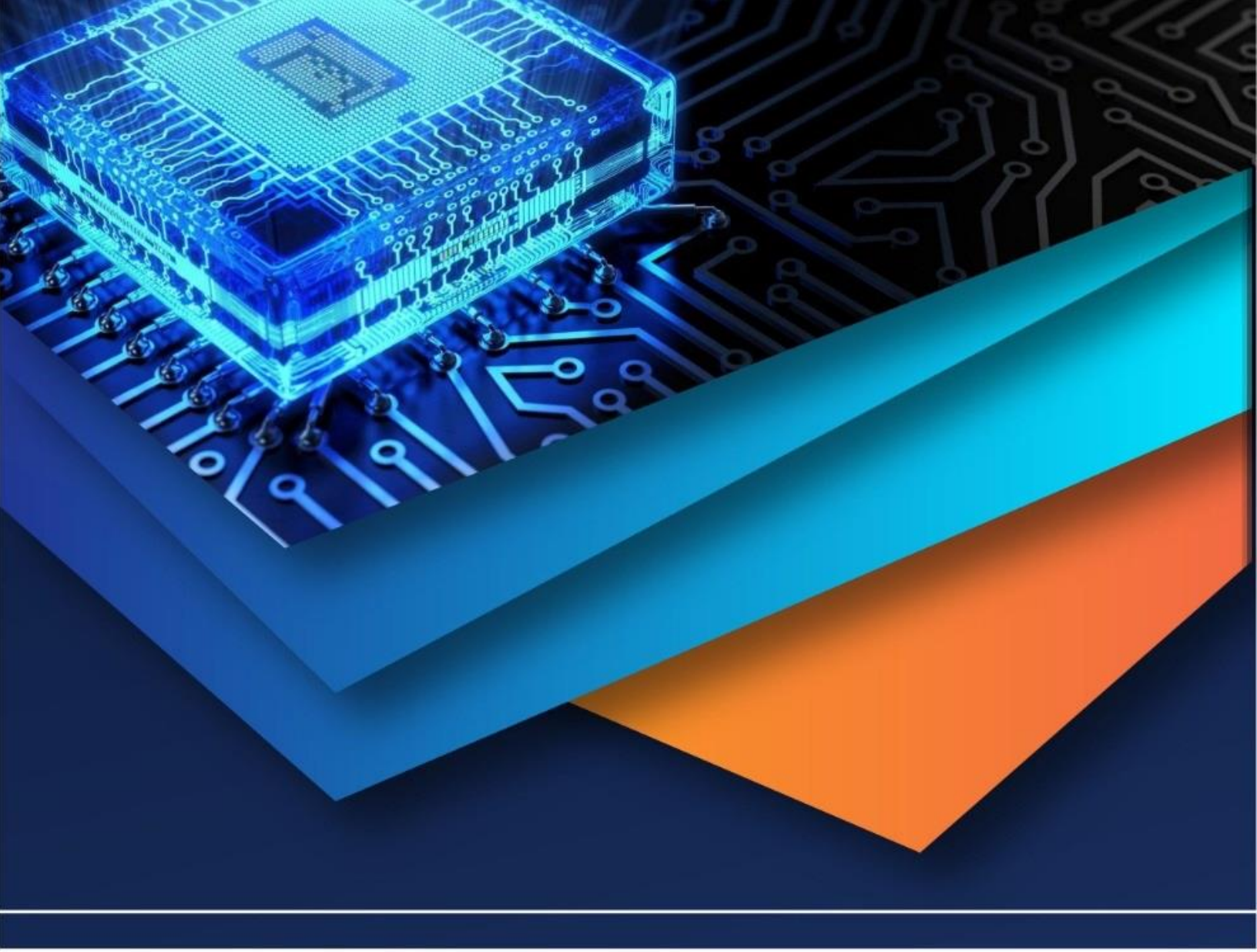
V. CONCLUSION

The proposed method will be easy to perform . Every aspect will be covered in this method. Hardly any error will get generate in this method of calculation and anyone including non skilled person will be able to use this method without any difficulties.

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