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# Use of Plastic and Recycled Brick Bats in Manufacturing Clay Bricks

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**ABSTRACT:** As per civil engineering is concern one should know that plastic is a very useful substance in our daily life but after use it is very difficult for us to dispose. Because it is a non-biodegradable substance. After its usage it is a hazardous material. Plastic is a new engineering material in which researchers take more interest to invest their time and money because it has a wide scope to enhance the usage of plastic in different work. Plastic is used in various objects which we use in our daily life like polythene, plastic cups, furniture, bags, packaging of food and other accessories, drinking containers, bottles, frames, basins etc. We need to use advanced techniques and methods to dispose plastic waste properly.

## I. INTRODUCTION

In India, we use incinerators to dispose the plastic waste in which plastic waste burns on high temperature. The gases which evolve during this burning process pollute air and water. Due to this, a large number of people get affected and suffer from many harmful diseases. Researchers suggest that if plastic isn't disposed of soon, it can sustain for 4500 years without degradation. Now, these days the rate of plastic use keeps increasing. So the collection of plastic waste is increasing at a rapid speed. The usage of plastic can't be banned, but we can reuse it in many ways. In construction sector, we can use the plastic waste on a very large scale after recycling it, which means the problem of plastic waste can be removed for a long time period. In construction field, many types of bricks are used like - clay bricks, concrete bricks, fly ash bricks, foam bricks. In this project we try to use plastic based bricks which has better characteristics than any other type of bricks. Bricks Made from Waste Plastic and waste bricks are cheaper than normal bricks. People can easily afford these types of bricks.

### Objectives-

1. To study an efficient way and to effectively utilize the waste plastics.
2. To reduce the consumption of natural resources such as clay for the manufacturing of bricks.
3. To minimize and reuse generation of waste plastic on the land and water to avoid land and water degradation and consequent pollution hazard.
4. To produce cost-effective materials which a common person can afford easily.
5. To reduce the plastic in waste streams saving nonrenewable resources.

## II. METHODOLOGY

➤ For this dissertation work Collection of information through literature review and research paper study will take place to study different methods of waste.

## III. LITERATURE REVIEW

### 1. UTILIZATION OF PLASTIC WASTE IN MANUFACTURING OF PLASTIC SAND BRICKS(2018)

The author states that the characteristics of bricks and tiles is far much better than normal bricks and tiles as minimum water absorption, highly compressive strength, smooth surface, unbreakable, less weight etc.

It understood that, the characteristics of bricks and tiles is far much better than normal bricks and tiles as minimum water absorption, highly compressive strength, smooth surface, unbreakable, less weight etc.



In this, they get to crush the plastic waste into fine particles and heated on a furnace (Bhatti). They use stone dust as fine aggregates (size below than 4.75mm), heated on a furnace (Bhatti). They mix heated plastic waste and heated stone dust and pour into mould and form bricks and tiles.

## 2. UTILISATION OF PLASTIC WASTE FOR MAKING PLASTIC BRICKS(2019)

The author states that they tried to find efficient way to solve this problem of plastic waste. So, they added this plastic wastes into the bricks and create the bricks by using plastic wastes. It is most economical solution present in the construction industry and it is also economical and environment friendly solution of the plastic wastes.

It understood that, the plastic brick is economical and environment friendly solution in construction industry.

Due to increasing population, the demand of plastic Materials and necessary requirement also increases. Brick is Largest materials used in the construction industries and Occupied in very large amount of materials of the project especially in residential projects. We find the different properties of bricks by conducting various tests on it. Among them compression and Water absorption test is most common test conducted on Bricks by the various researches. But the use of such types of Bricks is very limited in the industry. The quantity of plastic waste In Municipal Solid Waste (MSW) is expanding rapidly.

## 3. EXPERIMENTAL STUDY ON STRENGTH BEHAVIOUR OF PLASTIC SAND BRICK(2020)

The author states that to minimize the nonbiodegradable plastic wastes and to provide an effective way to minimize plastic wastes by producing quality bricks in the construction.

It understood that, the paper that minimize plastic waste in effective way by producing quality bricks from plastic waste which is nonbiodegradable material in the construction.

The aim of the project is to minimize the nonbiodegradable plastic wastes and to provide an effective way to minimize plastic wastes by producing quality bricks in the construction. The main objectives are to develop an efficient way to utilize the plastic wastes, to produce cost effective materials, to promote effective method of recycling of plastic wastes.

## 4. PLASTIC BRICKS(2017)

The author states that the eco-bricks are a collaboration powered technology that provides a zero-cost solid waste solution for individuals, households, schools and communities. Important think of using the waste in ECO BRICK was it can not made by recycling but just burn to plastic waste without adding any additives and it can also be used for atleast 30-40 years in a construction industry.

From the paper, it concluded that the eco-bricks are zero cost solid waste solution for individuals, households, school and communities. Eco brick cannot be recycling but just burnt to plastic waste without adding any additives and it can also be used for atleast 30-40 years in a construction industry.

Eco bricks are plastic drinking bottles packed with non-biological waste to make a reusable building block. An eco brick is a plastic bottle stuffed solid with non-biological waste to create a reusable building block. Eco bricks are used to make modular furniture, garden spaces and full scale buildings such as schools and houses.

## 5. FABRICATION AND TESTING OF PLASTIC SAND BRICKS(2019)

The author states that the traditional Bricks are made by clay, which puts stress on soil and also leads to soil erosion. The use of plastic sand bricks can be beneficial and would help to reduce waste. Thus the use of plastic bricks is a promotion to sustainable development and eco-conservation at the same time.

From the paper, it understood that, plastic brick is more beneficial than traditional Bricks. Plastic sand brick would help to reduce stress on soil and reduce soil erosion.

Non-biodegradable also causes land and water pollution. Among the various types of plastics used, Polyethylene (PE) is one of the most used. It is usually used in single use plastics such as carry bags, plastic bottles etc. One viable solution to using this plastic waste can be Plastic bricks. These bricks will eventually be able to enhance our management of plastic along with promoting sustainable development.

## 6. A STUDY OF MANUFACTURING BRICKS USING PLASTIC WASTES

The author states that, Plastic waste which is increasing day by day becomes eyesore and in turn pollutes the environment, especially in high mountain villages where no garbage collection system exists. Hence, these waste plastics are to be effectively utilized.

From the paper, it understood that, the manufacturing and analysis of bricks made with waste plastic (LDPE) and fine aggregates. The bricks produced are light weight, have smooth surface and fine edges, do not have cracks and have high crushing strength and very low water absorption.



Alternative way saves the quantity of sand/clay. The plastic waste is naturally available in surplus quantity and hence the cost factor comes down. Also coloring agents can be added to the mixture to attain desired shades.

### III. RESULT & CONCLUSION

We can recycle, reuse the plastic waste. As a civil engineer we have to innovate something new related to this, which is a boon for civil engineering. So, here we try to do something innovative as Use of plastic and recycled brick bats in manufacturing clay bricks.

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