

# Theoretical Analysis of Plastic And Sand Brick

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**Abstract-** Day by day our environment is polluted by immense amount of plastic wastes. However, there are several plastic waste recycled & reused, they are not done effectively. Plastic is a non-bio-degradable substance which takes centennial to deteriorate that creates land as well as water pollution to the environment. The use of Plastic is huge in consumption and one of the immense plastic wastes is polyethylene (PE). The main aim of this project is to replace cement with plastic waste in paver block and to reduce the cost of paver block when compared to that of convention concrete paver blocks. In which we make a brick with the use of plastic, sand and fine aggregate in different ratio. We make it economical, natural-friendly and light weighted paver block. From this, we use plastic which reduces the risk to environment from plastic and as well as we made light weighted, economical paver block.

## I. INTRODUCTION

Plastic is one of the day after day increasing convenient as well as a precarious material. At the time of require, plastic is found to be convenient but after its utilize, it is simply throw away, generate all kinds of endangerments. Plastic is incorruptible that remains as a precarious material for more than centuries. Plastic is an incorruptible substance which takes centennial to deteriorate that creates land as well as water pollution to the environment.

Hence, these waste plastics are to be productively utilized. Today, it is non-viable for any essential sector to work efficiently without usage of plastic from agriculture to industries. Thus we cannot ban the utilize of plastic but the reutilize of plastic waste in building constructions, industries are considered to be the most practicable applications.

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## II. MATERIALS

### Plastic

The plastics are often created to completely different completely different shapes once they square measure heated in highest setting it exists within the different forms like cups, furniture's, basins, plastic luggage, food and drinking containers, and that they square measure become waste matter. Accumulation of such wastes may result into precarious effects to each human and plants. Therefore, want for correct disposal, and, if attainable, utilize of those wastes in their recycled forms, occurs. this could be done through method of plastic management. Waste management in regard to plastic are often done

By recycling. If they are not recycled then they will become big pollutant to the environment as they not deteriorate easily and also not allow the water to percolate in to the soil and they are also poisonous.

### River sand

Sand is of course occurring granular material that consists of mineral particles and finely divided material. The composition of sand varies looking on the native rock conditions and sources, however the foremost constituent of sand in landlocked continental settings and non-tropical coastal region is silicon dioxide (SiO<sub>2</sub>) within the kind of quartz. The second usually utilised sand is that the carbonate, as an example mineral, that has principally been created, over the past 0.5 billion years, by numerous varieties of life, like coral and shellfish. Sand are currently utilised all told the development method.

## III. AIM & OBJECTIVES

1. To develop an efficient way to productively utilize the waste plastics and that plastic wastes acts as a great threat for the sustainment of ecological balance.
2. To reduce the consumption of earth based material as clay for the manufacturing of brick that resulted in resource depletion, environmental degradation.
3. To reduce the waste plastic quantities on the land and water to avoid land and water pollution.

4. To reduce the dumping area of waste plastics.
5. To produce the cost effective materials in construction industry.
6. To prevent the people health from harmful diseases.
7. To find the compressive strength, hardness, water absorption, efflorescence of the plastic sand brick as compare with clay brick and fly ash brick.

#### IV. FUTURE SCOPE

Now a days we have many fastest growing city in India, leads to increase the population; it is now developing. For the landscaping purpose of bungalows and apartments you need spectacular entrance with lavish look of outdoor flooring, you can have various options but to increase the visible feature we strongly think recommended that paver block plays the best, economic way to fulfill the purpose. Paver block being industrial products are comparatively hard and stiff for pedestrians and vehicular traffic. These solid precast pavers are versatile.

#### V. METHODOLOGY

1. So as to seek out the plastic sand bricks that they possess high compressive strength with varied combine proportions are created and that they are tested victimization compressive testing machine. the combination proportion were within the magnitude relation of (1:2, 1:3, 1:4, 1:5, 1:6) These are the magnitude relation that represent the plastic, watercourse sand severally.
2. In opening move we must always collect the waste plastic luggage and therefore the synthetic resin luggage.
3. Next the collected waste luggage are clean with water and dried to get rid of the water gift in it when this the plastics are burned get into instrumentation. Then the plastic luggage are additional to the instrumentation one by one and therefore the watercourse sand is additional to the plastic once it turns into hot liquid.
4. The sand is more is mixed completely victimization rod and trowel before it hardens. These mixtures square measure then poured into the brick mould and that they square measure compacted victimization steel rod and surface is finished victimization trowel. Before putting the mixture into the mould, the edges of the mould square measure oiled to simple removal of bricks.

#### VI. PROCESS

**BATCHING**



**BURNING**



**MIXING**



**MOULDING**

#### VII. TESTING OF PLASTIC SAND BRICK

- Compressive strength.
- Water absorption test.
- Crushing Strength Test.
- Hardness test.

#### VIII. ADVANTAGES

- It can be able to exterminate toxic organic compounds efficiently without pollutants transfer to another phase.
- The Plastic sand bricks possess more advantages which include Cost efficiency.

#### IX. DISADVANTAGES

- Due to need of incessant inputs of H<sub>2</sub>O<sub>2</sub> relatively superior operation costs is required.
- Plastic is flammable. It would need to pass any applicable construction codes.

#### X. CONCLUSION

Plastic sand brick possess more advantages which includes cost efficiency, resource efficiency, reduction in emission of greenhouse utilize gases, etc. Plastic sand brick is also known as “Eco-Bricks” made of plastic waste which is otherwise harmful to all living organisms can be utilized for construction purposes. It increases the compressive strength when compared to fly ash bricks. By utilize of plastic sand bricks, the water absorption presence of alkalies was highly reduced. Owing to numerous advantages further research would improve quality and durability of plastic sand bricks.

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