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TEST STUDY ON REUSE OF PLASTIC WASTE IN PAVER BLOCK

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Abstract - *This paper explores that the exhibition is to supplant concrete with plastic waste in paver square and to decrease the expense of paver square when contrasted with that of show concrete paver squares. There are 3 sort of absolute 24 paver square of size 200X100X100 mm. The debasement pace of plastic waste is likewise an exceptionally moderate procedure. Consequently the undertaking is useful in decreasing plastic waste in a helpful way. In this venture we have utilized plastic waste in various extents with sand, coarse total and artistic waste. The paver squares were arranged and tried and the outcomes were examined.*

Key Words: Plastic Waste, Sand, Ceramic Waste, Compressive quality.

1. INTRODUCTION

Paver square clearing is adaptable, stylishly appealing, useful, and practical and requires next to zero upkeep if effectively produced and laid. Most Solid Square clearing developed in India likewise has performed sufficiently. The utilization of Nonconventional and imaginative materials, and reusing of waste materials so as to remunerate the absence of characteristic assets and to discover elective ways moderating the earth.

We made three kinds of paver squares utilizing different fixing blend extent proportion as like sand, fired waste, coarse total .we done 24 example of plastic paver square.

It is extremely simple to utilize endurance for predistrians.it additionally shows great warmth obstruction contrasted with the show paver block.it can be utilized in gardens, passerby ways and cycle way and so on.

The principle point of the venture is to utilize plastic waste rather than concrete. As of now government has prohibited on plastic however we likewise attempted to expel staying accessible plastic on our encompassing territory on account of it is seriously influenced on people and creatures life legitimately or circuitous way.

2. METHODS AND MATERIAL

1. Proportion of materials:

1.1 Plastic Waste:

Plastic waste is used in making paver blocks was collected from surrounding areas. It includes plastic bottles, plastic bags. The plastic bag is used is of about 50 micron. The plastic is melted on 160˚.

1.2. Sand:

Sand is used is less than 4.75 MM in making plastic paver block. Also we takes the physical properties on sand and its compared to IS code value.

Table1.Properties of sand

SN	Description	Value	IS Value
1	Specific Gravity	2.49	2.65
2	Fineness Modulus	2.95	3.2
3	Water Absorption	0.65%	0.65%

1.3. Coarse Aggregate:

Locally available coarse aggregates were used in this work. Aggregates passing through 12mm sieve and retained on 10mm sieve were sieved and tested as per Indian standard specification IS: 383-1970

1.4. Ceramic Waste:

The principle waste coming from the ceramic industry is the ceramic waste. The disposal of these waste require large area. It is very difficult to find a use of ceramic waste produced.

2.1. Mix Proportion:

- Block type1- Three paver blocks were casted using mix ratio provided below
- Plastic waste = 3kg
- Sand = 1.4kg
- Aggregate= 1.4kg
- Block type 2 - Three paver blocks were casted using mix ratio provided below
- Plastic waste = 3kg
- Sand = 1.4kg
- Aggregate = 0.700kg
- Ceramic waste = 0.700kg
- Block type 3 - Three paver blocks were casted using mix ratio provided below
- Plastic waste=3kg
- Sand = 1.7kg

2.2. Preparation of Test Specimens:

In this our project, plastic are heated in metal bucket at a temperature of 160˚.when the plastic is melted properly well and came in liquid form then mix the one by one ingredients in melted plastic liquid and mixed it well. Then the prepared mould is cleaned and then the mix proportion is transferred in mould. After transferring mixture it shake properly that's why reducing the internal pores present in it then it properly settled. Then the blocks are allowed to dry for 24 hours so that they harden. After drying the paver block is removed from the moulds and ready for the use.

Fig 1.Heating and Adding

Fig 2.Casting And Drying

2.3. Testing of Specimens:

Compressive strength for paver blocks Plastic paver blocks of size 200X100X100mm was casted. The maximum load at failure reading was taken and the average compressive strength is calculated using the following equation.

Compressive strength (N/mm2) = (Ultimate load in N / Area of cross section (mm2))

Fig 3. Compression Test Machine

2.4. Oven test:

As the paver block is made of plastic we need to know its melting point hence over test is performed. The paver block is kept in oven for 2houes in oven and after 2 hours its condition is verified.

3. RESULT AND DISCUSSION

Table 2.Compressive Strength

Proportion Name	Plastic	Coarse Aggregate	Sand	Ceramic Waste	Compressive Strength (N/mm)2
PPB1	3kg	1.4kg	1.4kg	-	7.85
PPB2	3kg	0.700kg	1.4kg	0.700kg	13.50
PPB3	3kg	-	1.7kg	-	4.76

Table 3.Oven test result

Specimen	Temperature(0C)	Remark
PPB1	100	No Change
PPB2	100	No Change
PPB3	100	No Change

4. Conclusions

The accompanying ends were drawn from the test examination:

1. The usage of waste plastic underway of paver square has profitable method of removal of plastic waste.

2. The expense of paver square is diminished when contrasted with that of cement paver square.

3. Paver square made utilizing plastic waste, quarry dust, coarse total and artistic waste.

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