



MANUFACTURING AND PERFORMANCE OF FLY ASH PLASTO TILES

GUIDED BY: PROF ASHWINI WAGHULE

1.ROHIT SANJAY PATIL, 2. HEENA GULAMRASUL PATHAN, 3. DINESH DILEEP NAKHATE, 4. SHRIPAD DHONDIRAM PAWAR. 5. PROF. ASHWINI WAGHULE.

1. STUDENT, 2. STUDENT, 3. STUDENT, 4. STUDENT, 5. PROJECT GUIDE.

CIVIL ENGINEERING DEPARTMENT

DR. D. Y. PATIL SCHOOL OF ENGINEERING AND TECHNOLOGY

CHARHOLI(BK), VIA LOHGAON, PUNE.

Abstract-

Plastic generation in India is per year is 3.4 million tonnes .as we knows plastic disposal is the verymuch time consuming as well as very expensive method ,plastic takes years and years for it's disposal .And the waste generated from thermal power plants is also difficult to dispose it off .Which mAs increased rate of population is contributing to the polution as well as generation of waste materials .This consistently increase in polution is contineously threatening the human health .the plastic eans the disposal of fly ash is also a long lasting process.This study is carried out for the utilization of both the waste generated from both the sources.The utilization of plastic and flyash for manufacturing of tiles is the good practice for the pollution free environent.The tiles have it's different impact in the construction industry to complete the work or to give the good aesthetics tiles plays an imoportant role.

Key words-plastic ,flyash' sustainability,waste management,plastic-fly ash tiles ,reuse and recycle

INTRODUCTION

These are the tiles made of plastic waste generated from plastic bottles and the waste generated from power plant waste which means fly ash. As we know plastic is very important substance or material and which plays an vital role in our day to day life but equally it is very hazardous after it's usage due to its non-biodegradable nature.Nowadays researchers as well as scientists are taking much interest in plastic because it has wide scope in different fields.Plastic has it's own unique properties and can mix with any materials which we want this is the composition of synthetic and semi-synthetic organic compounds.In construction field different tiles are used like clay tiles,ceramic tiles etc.In this study we are going to manufacture the tiles made from flyash and plastic.these tiles are cheaper than other tiles and peoples can easily afford these tiles.the main ingredient of plastic waste is plastic water bottles.

* METHODOLOGY

1) COLLECTION OF WASTE

This process include the collection of waste materials such as plastic bottles which are thrown after it's use and the flysh from thermal power plant. About 95 million tonnes of flyash is being produced from various power plants.

2) MANUAL SORTING

The different plastic types were seperated from each other and the unwanted materials were removed from waste like the plastic bottles are attached with plastic on it's skin and the plastic caps etc. The seperated bottles were copped into smaller pieces and the chopped pieced were washed thoroughly to remove the glue,plastic labels,dirt etc.

3) MELTING OF PLASTIC MATERIALS

The chopped pieces are collected in a container and melted at its melting point of (150-170 degree centigrade)

4) MIXING OF MATERIALS

The flyash is added to the same container the mixture is stirred properly, the flyash is added little by little in quantity. The care shall be taken that the mixture does not catch the fire.

5) PLACING OF RESIN (PLASTIC+FLYASH) INTO MOULD

Once the homogeneous mix is obtained it is fed into the mould of size 30cm*30cm*2.5cm then the mould is oiled properly before pouring the mix. The mould is prepared by M.S. plate.

6) DEMOULDING

Once the mould is completely prepared and cooled then it is allowed to cure either by air cooling or by water curing. And then it is removed from mould and the floor tile is now ready to use with the smooth surface finish..

*ADVANTAGES

1) ENVIRONMENTALLY FRIENDLY

These tiles utilize flyash which is the byproduct of coal combustion and which reduce the amount of material sent to landfills.

2) LIGHTWEIGHT

These tiles have light weight when compared with traditional tiles, which makes it easier to handle during transportation, installation and maintenance.

3) COST-EFFECTIVE

As these tiles utilize flyash which is inexpensive when compared with other traditional raw materials, that's why these tiles are cost effective.

4) INSULATION PROPERTIES

Flyash plastic tiles have excellent insulation properties, helping to regulate indoor temperatures and reduce energy consumption required for heating and cooling.

DISADVANTAGES

1) Durability concerns

Flyash plastic tiles are not that much durable when compared with traditional raw materials like clay tiles or concrete tiles. They could be prone to breaking and cracking when exposed to heavy loads.

2) LIMITED AESTHETIC OPTIONS

The tiles made from flyash and plastic may have limited aesthetic options or may not have variety of appearances.

3) COST CONSIDERATIONS

Depending on the locality and materials available the tiles may not always be cost effective.

4) MAINTENANCE REQUIREMENTS

The flyash plastic tiles might require more frequent maintenance compared to other roofing materials to ensure longevity and performance.

SCOPE OF WORK

- 1) To reduce the generation of plastic waste and waste generated from power plants i.e. flyash.
- 2) To reduce the inconvenience for disposal of materials.
- 3) Tiles for roofing.
- 4) Utilization of waste plastic in construction industry.

