

# Plastic Homes

Anushka Porwal<sup>1</sup>, Sourabh Gour<sup>2</sup>

<sup>1</sup>Student, Department of Architecture, SDPS Women's College, Indore, India

<sup>2</sup>Professor, Department of Architecture, SDPS Women's College, Indore, India

**Abstract**—Plastic waste is an unwanted long term non-biodegradable waste which has a huge impact on our environment. Though many steps have been taken for minimizing the use of plastic waste, hence this huge amount of plastic waste needs to be utilized in an effective manner. To convert plastic waste into construction materials is one of the best ways to reduce the accumulation of plastic waste which is an highly non-degradable pollutant. Hence in this research, an attempt is made to study the construction materials made out of this waste and also there positive factors which reflect the ethicality of this idea.

**Index Terms**—plastic waste, plastic homes

## I. INTRODUCTION

Plastic home basically can be considered as a paradigm in modern era. Oceans and landforms are full of waste plastic. An initiation has been already taken by many concerned authorities to minimize plastic use but only a few could come up to the idea of reusing and recycling the waste plastic as a construction material which can be a very favourable idea to support those people who want to buy a cheap, reliable, fast assemblance factor for all needs. For a better living of people who cannot afford a durable house, get a chance to live in a well-constructed low cost plastic homes. In all over the world, several majors have been taken to reduce the use of plastic as a part of our daily lives but only a few can take initiation of reusing the waste plastic in a way which seems helpful notably. Oceans need to be re-beautified by removing the unwanted waste created by humans. A very remarkable change can be seen in the up gradation of poor's with this idea of reusing the waste plastic.

## II. LIST OF CONSTRUCTION MATERIALS

1. Plastic bricks
2. Plastic panels
3. Joinery material
4. Plastic sheets

## III. BENEFITS OF PLASTIC HOME

1. Already existing accumulation of waste is reduced leading to a greater possibility of feeling better natural vibes.
2. People living in slums or people below poverty line who generally cannot afford a durable house, get a chance to build their homes as per their choice since Plastic home is cheaper than brick and concrete homes.
3. Oceans get a better transparency and cleanliness factor is

achieved.

## IV. TYPES OF PLASTIC BRICKS AND PANELS

1. Lego plastic bricks and panels
2. Air perforated plastic bricks
3. Block – type plastic bricks and panels

## V. PROCESS INVOLVED IN CONVERSION OF PLASTIC WASTE TO CONSTRUCTION MATERIAL

1. Collection
2. Separation
3. Chopping
4. Heating
5. Hydraulic press
6. Crystallization

## VI. USES OF WASTE PLASTIC

1. Paints and varnishes.
2. Adhesives
3. Panels
4. Sheets foams
5. Pipes
6. Façade panels: Sandwich panel
7. Roof covering: Flat, gutters, domes, Casements, Troughs, Downpipes, Curved sheets etc.

## VII. APPEARANCE

1. Good appearance
2. Attractive
3. Exotic shapes possible for ornamental purpose.
4. Free choice of color.

## VIII. WORTHWHILE FACTORS

1. Durable
2. Cost effective
3. Recycled
4. Energy saving
5. Safe
6. Easy to install
7. Impermeable
8. Green living
9. Low maintenance
10. Thermal and sound insulation

11. Light in weight
12. Fireproof
13. No adhesive necessary
14. Hollow inside for electric and plumbing
15. Earthquake resistant
16. Vastu compliant
17. No professional skills required

#### IX. ECODOMUM: A MEXICAN STARTUP

Enough of the plastic is thrown away every year and only 5% is recovered. A variety of plastic is extant which might take thousands of years to decompose leading to discharge of toxins. Mexico being the 12th largest plastic consumer in the world (5 million tons plastic per year) faces a large impact on their surroundings. Carlos Daniel Gonzalez grew up in the state of Puebla knows the prevalence of this kind of pollution and the damage caused to its community. Considering all these thoughts he came up with an idea of collecting plastic, melting it down to shape it into large panels, and using such panels to construct a plastic home. He founded “Ecodom” in 2013 and decided to dedicate rest of his life to it.



Fig. 1. Plastic portacabins

A minimal space for a living, when gets transported according to somebody’s convenience and involves a highly recommendable idea of using plastic waste can become a contemporary modern phase of plastic porta cabins which can probably meet some of the basic needs for few people and can

also help in reducing the abundant waste plastic already existing in landfills and oceans. Generally, porta cabins can be used for shelters, vanity vans, portaloos etc. Many companies are already investing money on porta cabins which are generally made up of plastic but for a change, they might invest some money on recycled plastic porta cabins. This can undoubtedly increase their profit as well as help in reducing the plastic waste all around.

#### Key Notes:

- If plastic brick is covered with aluminium foil and glued with some epoxy, it would withstand UV much better.
- Exotic shapes are possible for decorative purposes.
- Plastic needs to be separated such that least amount of harmful gases are emitted while melting.
- Roofs are strong enough to grow gardens in it.
- Hollow bricks can reduce the use of cooling and heating devices as per seasonal requirements due to their property of thermal insulation.
- Plastic bricks / panels can withstand high amount of pressure as compared to modular bricks.

#### X. CONCLUSION

Plastic waste is a threat to our environment. To control, reuse of waste plastic is a very important factor in terms of future landfills and oceans.

Also, Ocean will get its originality back in this process of collecting waste plastic. More importantly, people who live below poverty line or the people who live in slums get an opportunity to live in a well-constructed house that too at a cheaper cost. This will gradually minimize the slums. Therefore an initiation to a better life and better environment is being observed.

#### REFERENCES

- [1] <https://unreasonable.is/ecodomum-story/>
- [2] Bricks from plastic waste by shikhar shrimali
- [3] <https://www.gaiashomes.com/>