

“An Implementation of Technique for Construction Waste recycling and Reuse”

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Abstract

Construction industry produces large amount of waste throughout the year. Most of the time construction and demolition waste ends up in landfills disturbing environmental, economical and social life cycle. Construction and demolition waste is the waste materials that are produced in the process of construction, renovation or demolition of residential or non-residential structures. Components of construction and demolition waste typically include concrete, asphalt, wood, metals, gypsum wallboard, roofing, paper, plastic, drywall and glass. Concrete is the second most consumed material after water, so recycling of concrete can save construction costs also it will help to keep environment healthy. Concrete collected from sites is put through crushing machine, usually uncontaminated concrete i.e. free from wood, plastic, paper and other unwanted materials. Metals such as rebar are removed with the help of magnets and other sorting devices. Process of recycling construction and demolition waste includes storage, sorting, collection, transportation, recycling and disposing.

Recycling of Construction and demolition waste has many benefits such as reduction in transportation cost, it keeps environment clean and reduces natural resource exploitation. To promote recycling and reuse of waste, awareness about its effects and benefits should be communicated with people, contractors, engineers and architects. More numbers of recycling plants should be installed and allowing the use of recycled aggregate instead of natural aggregate for some purpose. In this paper we are going to focus on different recycling techniques and reuse of construction and demolition waste.

Keywords: Construction & Demolition waste; Recycling; Reuse; Recycling techniques.

I. INTRODUCTION

"Construction waste" means any substance, matter or thing which is generated as a result of construction work and abandoned whether or not it has been processed or stockpiled before being abandoned. It is a mixture of surplus materials arising from site clearance, excavation, construction, refurbishment, renovation, demolition and road works.

Construction waste has caused serious Environmental problems in many large cities. Enormous amounts of infrastructure and building work have been built, so numbers of demolished structures are also increasing in construction work. As increasing demands of dumping areas for never ended demolished waste are thrown away, there is a shortage of landfills. Therefore, reducing waste generation becomes a pressing issue around the world.

B. OBJECTIVES

To find the major components of construction waste

To find the rate of recyclable and reusable construction material.

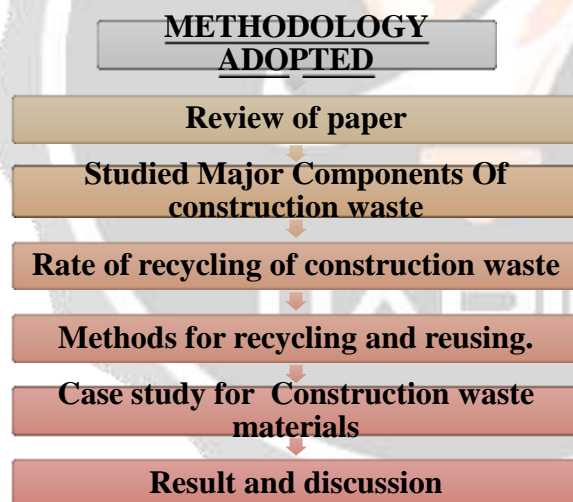
Methods used for Reusing, Recycling and Reducing Construction Materials.

II. REVIEW OF LITERATURE

As environmental protection has been pressing hard around the world, high energy utilization and pollution generation from construction activities seems cannot be controlled. Reusing, recycling and reducing construction materials have been encouraged and suggested for the practices in construction activities. This paper investigated the rates of reusable and recyclable waste for plastic, paper, timber, metal, glass and concrete from five case studies. It was found that “metal” has the highest rate as the high profitmaking on recycling while “plastic” has the lowest rates. Recommendations on reusing, recycling and reducing construction materials were also discussed.

Construction and demolition (C&D) waste generation and handling issues have been in focus to achieve sustainable goals. Owing to growth in construction in India, it is appropriate to link generation of C&D waste with the growth. If measures to minimize and handle the C&D waste are not developed and efficiently adopted it may threat the environment.

III. METHODOLOGY



Solid wastes are an inevitable product of the society in which we live. Construction and Demolition activities are currently responsible for approximately 20 to 30% of all waste going

into landfill. C&D waste is caused by a variety of factors, many of which are related to the design

methods, construction technologies, and trade processes used on any particular job. Reuse, recycling and waste minimisation strategies may be used to divert or reduce the amount of

C&D waste in landfill. Strategies such as Design for Disassembly, and the use of industrialised construction systems are indicative of an emerging design methodology aimed at achieving sustainable development. The field of product design and manufacturing has been largely responsible for developing and applying many of these strategies to date. Similar methods may be applied to the design and 'manufacture' of buildings. Many of the strategies applied by product designers and manufacturers are only cost effective when an article is mass produced. In order for these

methods to be applied to buildings it will be necessary for the design methodologies surrounding their production to acknowledge buildings as hyper-products, or unique collections of many mass items.

IV. Case studies:

Table:1

Case Study 1	Total waste	Actual reusable waste
Plastic	0.3	0
Paper	1	0.7
Timber	30	10
metal	200	200
Glass	8	0.4
Concrete	100	40

Table:2

Case Study 2	Total waste	Actual reusable waste
Plastic	0.5	2
Paper	1	0.9
Timber	20	10
metal	100	100
Glass	1.5	0.5
Concrete	100	5

Table:3

Case Study 3	Total waste	Actual reusable waste
Plastic	0.7	0
Paper	1	0.8
Timber	5	4
metal	70	70
Glass	10	4
Concrete	250	200

VI. CONCLUSION

The major component of construction waste is concrete.

It was found that “metal” has the highest rate as the high profit making on recycling while “plastic” has the lowest rates .Recommendations on reusing, recycling and reducing construction materials were also discussed.

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