NEW INVENTION

PLASTIC SCRAP BALES RECYCLED TO INEXPENSIVE BUILDINGS

STEVEN ALAN WOLFOWITZ 1 APRIL 2018 GLOBAL PATENTS PENDING

THE BIY " BUILD IT YOURSELF " SYSTEM

INTRODUCTION

Realization that our World is being swamped by masses of scrap plastic has dawned. Considerable efforts are being mobilized to curtail the serious problems. Use of single use items, like bottles, closures, packaging, coffee cups, flexible bags, cans, etc., are being reduced where possible. The concentrations of these indigestible items in the oceans are critically poisoning sea-life and ultimately the food chain.

The convenience of use without remedy has caused the growing problems. Millions of tons of scrap plastics litter the world already. Means of recycling these waste products need to be developed and implemented as soon as possible or the problems will just escalate.

There are several difficulties:

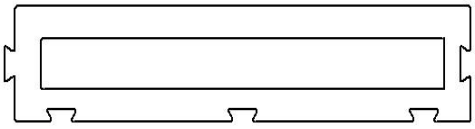
- Scrap is accumulated in vast piles of filthy mixtures which have varying properties;
- To reuse these varieties need to be cleaned and sorted into like types; this is difficult and requires time-costly manual dextrous processes, usually not viable;
- It's a messy job;
- Paper, labels, contaminants like metal closures and cans etc., are usually present together;
- Drying and granulating to fine sizes are usually required;
- The quality of separated products is not always suitable for reuse consistently; etc.

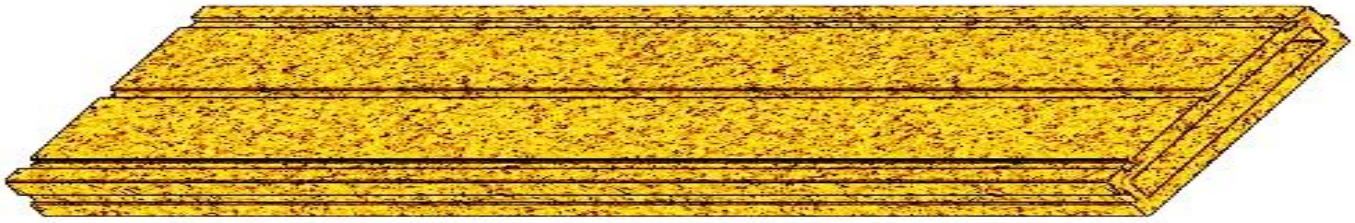
A newly patented invention now provides a means of achieving results while producing useful objects for construction automatically which use can help to alleviate the enormous lack of suitable housing for forever burgeoning destitute homeless populations, for example, while averting the difficulties listed.

THE BIY (Build It Yourself) PROCESS

The effect is to intercept plastic waste before it reaches our oceans at municipal dumps and convert it into useable permanent building formwork and panels for housing which is an ever-needed growing requirement. Masses of scrap plastic are granulated into relatively small pieces including paper, labels, metal and other closures and cans etc., *without sorting* and simply washed in large stirred tanks. Vibrating conveyors transport the resulting slightly wet material to large hoppers with stirrers. Sand is added together with other scrap materials like used paper packaging etc in reasonably constant proportions.

The hoppers funnel the mixtures into large extruders heated by heater-bands, etc. The water boils to about 250^{o}C – 300^{o}C and encapsulates the materials melting and converting the scrap plastic mixtures into adhesives which bind all the materials together under pressure. The hot mixture is extruded through dies of the following shapes:





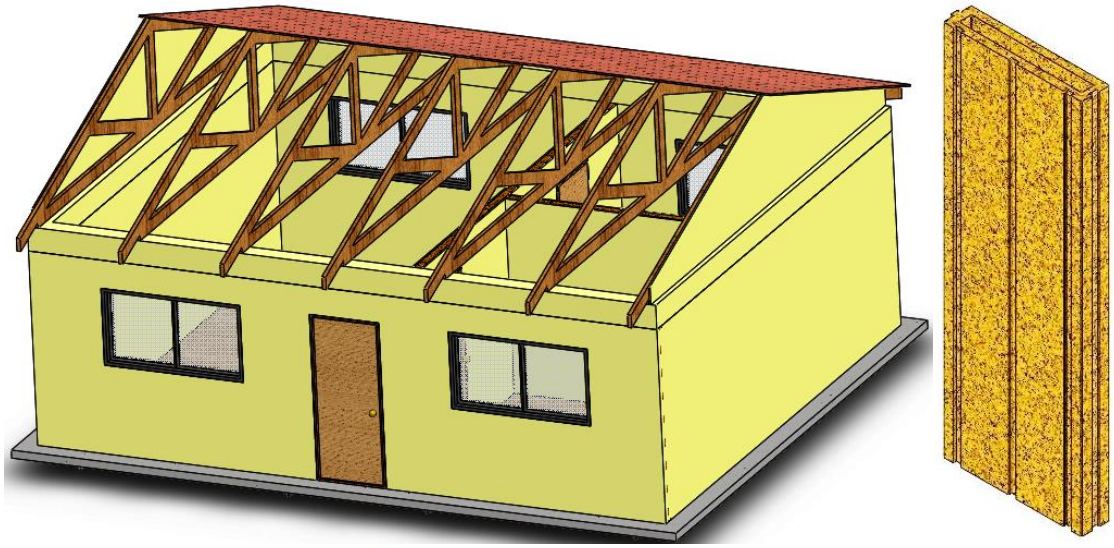
Lugs at one end slide vertically into corresponding cavities at the other side profiles provided to allow perpendicular or angled branching walls to be joined, connected and built. Concrete may fill the columns.

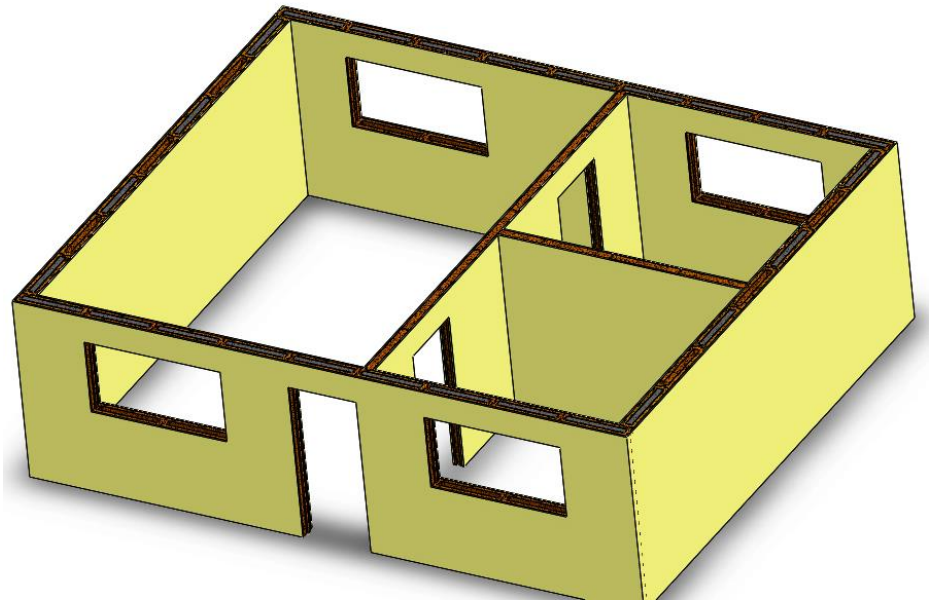
Extruded lengths of cooled formwork for columns and/or walls are produced which may be cut to desired lengths. Starter reinforcing bars may be secured in base plinths or strip foundations, etc., to engage with concrete poured into the formwork vertically throughout the building walls consecutively. At required heights concrete lintels or beams may be fitted to provide horizontal connections and stability. A complete reinforced ringbeam at the top provides support for the roof structure. The outer exit profile of the dies has formations to permit escape of steam irregularly so that a rough surface to the walls is produced as extruded. This facilitates plaster adherence and bonding to the surfaces so conventional construction appearances may be obtained.

ADVANTAGES

- Extrusion provides rapid production of convenient shapes;
- The formwork may be conveniently stored and transported in desired lengths;
- Minimal coefficient of expansion under fixed in-situ positions so no plaster cracking;
- Plastic scrap is available around the world in convenient locations;
- Sand and/or rubble is available everywhere;
- Sand increases mass and is a fire-retardant;
- No need for sorting different materials and metals with paper etc., included;
- No need for drying or granulating to fine dimensions;
- Scale vibrating conveyors constantly transport consistent materials producing uniform mixtures;
- Useful housing permanent formwork is produced by recycling waste;
- Internal cavities are produced by steam generation assisting in reduced heat transfer;
- High temperature steam exerts high pressure compression for component bonding.
- Etc.

The House that Scrap Waste Built





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steven.wolfowitz@wolfowitz.com