Environmental Design – Furniture from Waste

Rachana Sansad’s Institute of Environmental Architecture

Designing furniture from waste materials is not an unfamiliar concept. Many have laid their hands on it. Yet, it is still a style statement, far less a reality. What if furniture could be designed from waste generated from a furniture factory? Indeed, such a project was conceived and undertaken in September 2014 by the Rachana Sansad’s Institute of Environmental Architecture, which conducts a two years Masters Program in Environmental Architecture since 2006.

The Institute, which has a long-standing collaboration with Godrej Interio on various design and research projects, took the initiative of conducting visits to the Godrej Interio factories in Shirval, Pune and Vikhroli, Mumbai. A whole range of waste products from particleboards to metal strips and packaging waste were identified and given to students as raw materials with which to design furniture.

For Godrej Interio, it was an opportunity to close the loop and see what best could be designed from waste.

Over a period of 3 months, the project was undertaken as part of a curriculum subject, ‘Sustainable Building Materials’ by Prof. Tamar Akov, a visiting faculty at the Institute, who took the first semester Masters students of Environmental Architecture through a design exercise, which culminated in one furniture design from waste for every student.

Prof. Tamar Akov, an industrial designer specializing in sustainable design, has an MA in Industrial Design from Bezalel Academy of Art and Design in Jerusalem, Israel. Having taught Sustainable Design, Packaging and User centered design at various design colleges in Israel, she has worked as a designer in Tel Aviv, Atlanta, and Washington DC. Her furniture pieces and design have been featured and sold at galleries and exhibitions in Washington DC, New York, London, and Tel Aviv.

The design was based on a sustainable thinking process: identifying waste materials, their physical and visual properties and the potential they present. Through looking at specific users, identifying a need, and choosing a particular piece of furniture, the students were asked to developed an original design that require minimum manipulation and material - a "function follows (waste) material" action. Modularity, self-assembly, versatility, upcycling and other sustainable properties were encouraged.
“We learnt: not to scrap the ‘scrap’. The exercise gave us an insight into the amount of waste ‘created’ during the process of furniture manufacturing, and challenged us to give the ‘discarded material’ a new life,” says Architect Sunanda Satwah. Another student, Architect Ranjani Parasuraman observed: “The process of learning was educative in terms of understanding a specific material in detail. The experience of designing with constraints was also fun.”

“Inspiring and completely challenging our ability to design and thinking towards sustainability. The use of scrap in itself was a challenge, the joinery details and the workability, all in all a thorough design workshop that sensitized us to materials and its nature.” – Ar. Lakshmi Harikumar
Furniture designs from waste by students of Rachana Sansad’s Institute of Environmental Architecture

The Cartwheel Seating - Ar. Laxshmi Harikumar
Outdoor furniture, a dynamic seating that would allow one to choose the side they want to face and sit. The idea was more of a ‘form followed function’. The faulty handles were used with no further changes, a combination of these handles to create a furniture, sustainable and user friendly.

Ar. Laxshmi Harikumar

Furniture from Waste - The Cartwheel Seating
Furniture from Waste - The Cartwheel Seating - details
Shelf - Ar. Kashmira Devlekar

‘Shelf’ is designed using furniture manufacturing waste materials – metal pipes, cushions, particle board. The goal of designing this product is to create a module which can be multiplied and used as per individual's need. This module can be stacked one above the other and screwed or bolted together with desired combinations to make a unit e.g. bookshelf with seating arrangement, TV unit, multi-storage unit, wall mounted bookshelf etc. It also acts as a room divider. Thus with its flexibility in use and eco-friendly sourcing, ‘Shelf’ is bound to appeal to young and green consumers.

Furniture from Waste - Shelf
Furniture from Waste – Shelf - details
Triangle Legos – Ar. Aliasgar Poonawala

A piece of furniture made out of the metal sheet waste produced by Godrej. The furniture is conceptualized through modules of triangles varying in size and color. This arrangement can be used in multiple ways like a chair, table and partition as per user-preference. The triangles can be completely dismantled and the user would be provided with a guideline to assemble it with various permutations and combinations. The modular nature, thus enables ease of assembling and transporting the furniture item.
Furniture from Waste - Triangle Legos - details

Furniture from Waste - Triangle Legos - view
A multipurpose piece of furniture for the Age Group of 2.5 To 6 years - Ar. Ranjani Parasuraman

The design aims to provide a multipurpose, adventurous, useful and attractive piece of furniture for kids in the age group of 2.5 to 6 years. The product is made out of a cylinder waste, which is a waste from Godrej furniture factory used for rolling metal sheets along with the particle board waste (available in different colors). It serves the purpose of a table-chair, scribbling board and storage. The particle boards can be rotated along the groove and can be used at any point as a table and chair by children of varying heights. The particle boards can also be stacked inside. It enables playfulness by allowing a child to climb on the particle boards arranged in the form of series of steps. Creative learning like understanding shapes and counting them in terms of numbers also adds to the fun.
Furniture from Waste - Multipurpose furniture for kids - details
The Organizer Desk - Ar. Sunanda Satwah

I chose to work with Particle Board scrap generated in the Godrej furniture factory; since these are relatively more difficult to recycle, due to pre-lamination. The 'Organizer Desk' is assembled from rejected particle board planks that are put together in an order that emphasizes the aesthetics of their un-symmetrical purity. The outcome is a chic work table - that would make for a green fashion statement in any room.
Furniture from Waste - The Organizer Desk - model
Kaleido Center Table - Ar. Nawazish Kirmani
A collage of the discarded, Kaleido is a mosaic of simplicity and upcycling in vibrant colours.

Ar. Nawazish Kirmani
Kaleido Center Table is the outcome of a process oriented approach.

The cut out waste of particle board from a reputed furniture manufacturer in India is converted into a colourful collage like center table in a very basic and simple way.

The weak edge of particle board is enclosed by Resin which also binds multiple pieces of various sizes together to form the top surface while the base is done through simple steel pipe bending process.
Furniture from Waste - Kaleido Center Table - model