

Chicago Students Working To Lighten Landfill Loads

BIFMA was recently invited to speak to Archeworks, an alternative design school for architects, about the Resource Reclamation Project being planned in Michigan involving prison workers in product disassembly for scrap recovery and landfill avoidance. They were excited about our work and we about theirs! Here are two articles by students presenting their thinking along with drawings of a prototype of "The Unit for Living" they are building for a sustainable furniture show this summer. Their goal was to "repurpose discarded pieces and parts" that normally would be thrown out by making them into something functional. Thanks to Lisa Kulisek and Archeworks for allowing this meeting of the minds. Our future is in good hands.

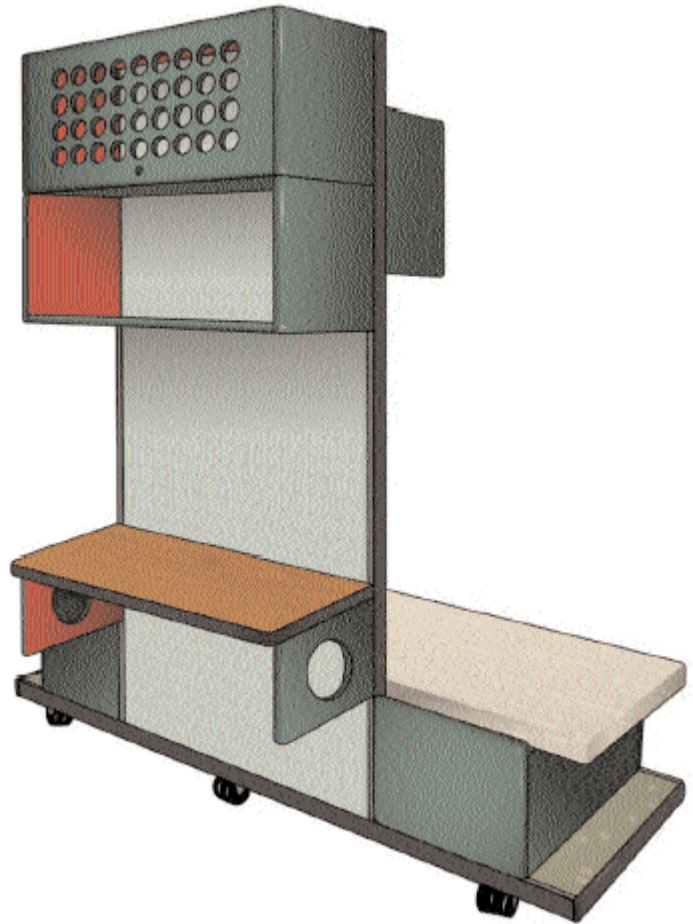
New Products Need the Eye of the Disassembler

By Lars Söderkvist

In the effort to make resource use more sustainable, a key consideration is design for disassembly, or DfD. Recycling materials is vastly more reasonable than extracting materials from the earth and using them once in a consumer product, to be sent back as buried garbage or released in the air as burned waste or fuel. Yet recycling as it's currently practiced does little to enable materials to be cycled through more than once, while allowing for things to enter and re-enter service a number of times is the only meaningful way to bring the concept into being. We currently accept a frighteningly anemic version as the thing itself, and it takes some serious thought to imagine an implementation of recycling in a deep form. This is partly because the products that now surround us were rarely imagined as items to be someday disassembled for further use or for recycling. Design for disassembly takes into account the benefits that come from easy reclamation of materials for reprocessing (or in some cases safer disposal), as well as from facilitating the repair or replacement of parts before the entire product has reached the end of its useful life.

Previous to this moment in human history, design for disassembly had been an unglamorous and un-trendy idea, given that the circumstances of people's existence rarely revealed the scale of waste that we are now familiar with. Building materials were typically stone, timber, and other available (often local) resources used in a way they could easily be incorporated into new buildings, and economic necessity usually assured that they would be. Traditional Japanese building techniques, for example, include a method of constructing with pieces that fit together like a puzzle, the lack of nails making disassembly simple, resource-efficient, and well matched to the means of those building and using the structures.

Design for disassembly is key to cradle to cradle design, a concept articulated in the work of chemist Michael Braungart and described in the book *Cradle to Cradle: Remaking The Way We Make Things*, by Braungart and his colleague William McDonough. Cradle to cradle describes product design



**Archeworks Prototype of a Desk Made From "Repurposed Parts"
For a Sustainable Furniture Show This Summer**

that enables as much material as possible to be recycled into the same product, or to become material of the same quality. This emphasis on staying within the same level of quality is important, since conventional recycling can be thought of as downcycling, typically involving a material being manufactured into a consumer product that's then melted down or taken apart in order to reclaim the material for use in a less valuable form. Plastic containers for consumer goods are recycled into plastic lumber for park benches or decking, but in the process of reclaiming the resin and giving it another useful form its tensile strength is greatly diminished. The material is caught in a downward pattern of usefulness, and has a severely limited life-cycle. Cradle to cradle design involves using materials in a form that allows for easy separation into constituent parts so that the materials can be reprocessed, or simply reconfigured, into new items of a comparable grade. McDonough and Braungart talk of a world of biological nutrients and technical nutrients, their radical idea being that products should be designed as much as possible to use strictly one or the other (or both, as long as they can be safely separated) and make the nutrients readily available for further use at the end of the item's useful life.

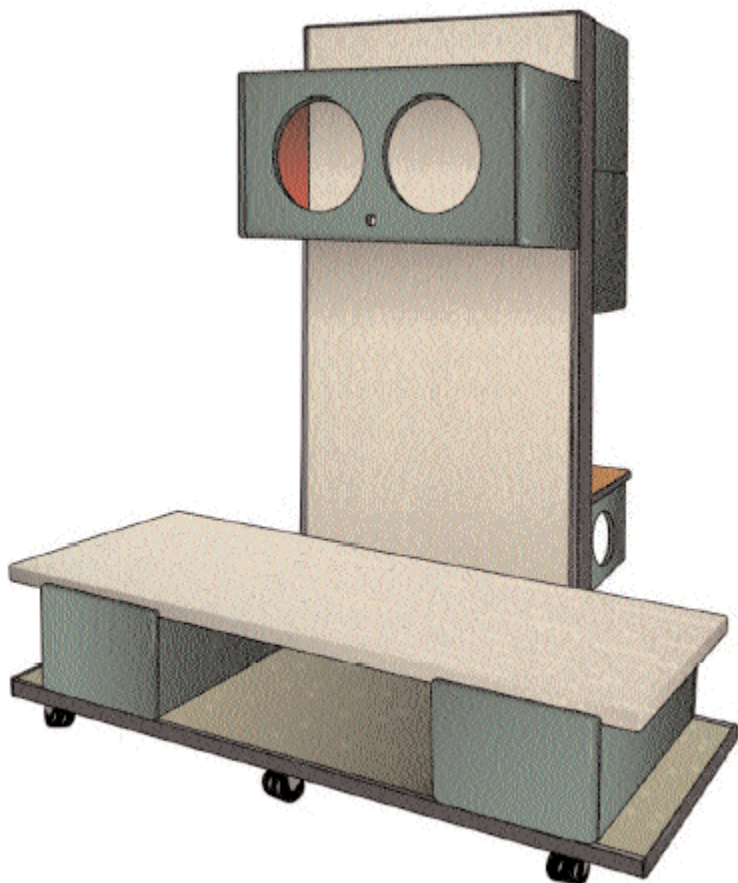
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It is increasingly necessary to design products in this mode of thinking, and a business environment is quickly being created with great opportunity to profit from incorporating cradle to cradle thinking and DfD in product design. The competitive pressure - the advantage to being in the lead or at least not lagging behind - is an ever more real consideration for manufacturing businesses as they face consumer demand, public relations concerns, waste management issues, and transportation and energy costs. DfD is a component of any truly sustainable approach to resource use, so the effect is towards sustainability as new adopters incorporate the process.

Space Is Not The Place

By Sarah Vogel

When we first started taking apart office furniture, we were particularly struck by its sheer designed-ness. It is particular stuff, precise, built to do exactly what it does best - serve its time as office furniture. The labor put into the design and construction, along with its durability, far outweigh the value of the raw materials. Despite that, the fact that some brands are built to be easily disassembled immediately suggested the possibility of recycling the individual components - or at least the steel and aluminum. Since then, we have come across efforts to develop cost effective



Another Potential Product in "The Unit for Living", This Bed Was Conceptualized by Archeworks Students

methods of recycling both fiberglass and particle board.

We needed to conceptualize what purposes these highly designed objects could fulfill somewhere in the realm between destruction and reuse. Since we did not allow ourselves to be constrained by practicality in any fiscal or structural sense, it quickly became clear that these purportedly ubiquitous and useless items could be repurposed both practically and fantastically. While in a few hours, we considered hundreds of options, you will find illustrated here those which we were most inspired by.

1. Plugging Mt. St. Helens. One of the most pressing issues to consider when looking to reuse office furniture is the unbelievable quantity (not to mention weight) of the pieces. The EPA has estimated that approximately 3 million tons of office furniture and furnishings are discarded each year. Especially as the industry transitions from primarily producing cubes to developing more modular and modern pieces, there will be a huge glut of used furniture in the resale and landfill markets. Questions of where to find a large enough market for the old furniture - when 3 miles of panels are produced in one day at Haworth alone - tends to a series of more and more ridiculous solutions. Mt. St. Helens would require quite a bit of furniture to fill it and the pile would have to be replenished as the pieces decayed or melted. Other proposed solutions for the particular problem of quantity include filling the Mariana Trench and sending the furniture into space.

2. As we continued to look for a large enough market to absorb such a quantity of product, we realized that if the furniture could be made attractive to homeowners, the glut of furniture could fuel the public's current passion for designing and redesigning their homes. Building cabinetry, shelving and tables for the home or garage. Office furniture, while designed for the office, is also very determinedly designed to be durable storage and organization units. With the aesthetic possibilities afforded by recovering, repainting, and die cutting the furniture, it can be transformed into anything from hipster loft dividers to garage and laundry storage to backlit bookcases. One limiting factor could prove to be sufficient production of relevant hardware and connecting pieces, but apart from that, old office furniture could be the next California Closets.

3. Office panels themselves are specially designed to provide superior acoustic insulation in an office setting. Imagine new housing and building projects utilizing old office panels in-between walls to provide sound absorption as well as an extra layer of insulation. This is just one instance of realizing a particular aspect of office furniture design. Perhaps the panels could also be reused in auditoriums as acoustic paneling.